PALATABLE TONIC LAXATIVE.

FERRIS & Co.'s PATENT CASCARA CHOCOLATE BONBONS.

Prepared with the finest sweetened Eating Chocolate, the proportion of the active ingredient being carefully adjusted so that each Tablet or Bonbon contains a dose equivalent to twenty minims of the Fluid Extract of Cascara. The Tablets are of such a form that they can be easily divided, should a smaller dose be desired; and *the taste can hardly be distinguished from that of ordinary Chocolate.*

Feb. 8, 1889.
"Your tasteless liquid extract of Cascara Sagrada, and the Bonbons have given me great satisfaction. A little patient greatly appreciates the bonbons."
——. M.R.C.S.
To Messrs. FERRIS & Co.

Feb. 13, 1889.
"Dear Sirs,—Please send me a dozen boxes of your Cascara Bonbons. They are a very pleasant way of taking a valuable and nauseous medicine, and they answer their purpose admirably."
——, L.R.C.P., M.R.C.S.
Messrs. FERRIS.

In habitual or chronic constipation. Invaluable for children, ladies and invalids. No nauseous bitter taste. By far the most agreeable form of administering Cascara Sagrada yet introduced.

IN BOXES 1s. 9d. each, 18s. PER DOZ.

SOLE MANUFACTURERS AND PATENTEES, FERRIS & COMPY., BRISTOL.

Discussion on Recently Introduced Hypnotics and Analgesics.

(Section of Pharmacology and Therapeutics, British Medical Association Annual Meeting, 1889.)

After reviewing the action and utility of the newer sleep-producing agents, Daniel John Leech, M.D., F.R.C.P., said :—

"When sleeplessness is due to pain, there can be no doubt that *no other hypnotic approaches Opium in value*, and in such cases it has always appeared to me that the possible evils consequent upon the administration of Opium are minimised.

"After Opium, though at a long interval, comes Chloral, which undoubtedly at times relieves pain, and below Chloral in efficacy come the other hypnotics. . . . . In cardiac affections accompanied by sleeplessness, *Opium stands out prominently as the best soporific*, especially when given in the form of subcutaneous injections."

NEPENTHE.

The Safest and Best Preparation of Opium.

PRODUCES NEITHER HEADACHE, SICKNESS, NOR CONSTIPATION.

Dose : The same as that of Tinctura Opii, B.P.

In spite of the large number of "new hypnotics" which have been recently introduced and recommended, some of them very highly, to the notice of the medical profession, Nepenthe still holds its position as *the* hypnotic and sedative *par excellence*; it is constantly increasing in favour, and the sale is larger now than it ever was.

PREPARED EXCLUSIVELY FROM OPIUM.

NEPENTHE, double strength, and GLYCEROLE OF NEPENTHE (eight times the single strength), for Hypodermic use.

SOLE MANUFACTURERS :

FERRIS & COMPY., BRISTOL,

Wholesale and Export Druggists.

FIVE PRIZE MEDALS AWARDED.

NOTICE.—*Messrs. FERRIS & CO. are the ONLY Manufacturers of* Nepenthe, *and medical gentlemen are especially cautioned against using any preparation which does not bear their name and label.*

Nepenthe *is registered under the Trade Marks Act, and protected by a fac-simile of signature pasted over each cork, and is sent out in bottles bearing a label in white letters upon a green ground.*

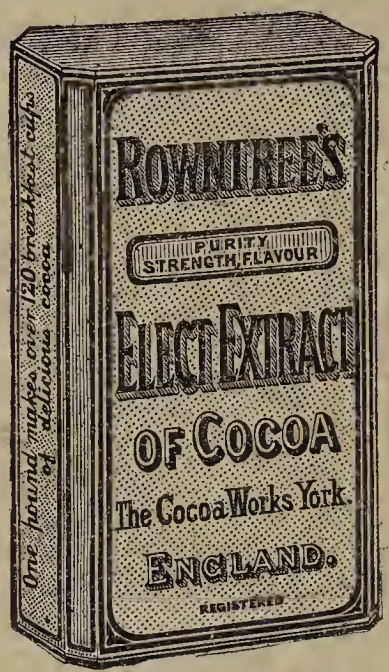
Two pounds Nepenthe, or one pound Nepenthe and three pounds Ferris & Co's Syrup of Chloral, forwarded to any member of the Medical Profession, carriage free, on receipt of postal order for Sixteen Shillings.

ROWNTREE'S
ELECT COCOA

PURITY

STRENGTH

FLAVOUR



PURITY

STRENGTH

FLAVOUR

The "ELECT" COCOA is characterized by Extraordinary Strength and by a Refreshing and Delightful Taste and Aroma.

Can be made in a moment.
Is extremely soluble and digestible.
Is ECONOMICAL—one pound makes over 120 cups of strong and delicious cocoa.

The "*Lancet*" says—Strong and pure..Free from Acrid Taste.

"*British Medical Journal*"—One of the best.....Flavour and Aroma are good.

"*Medical Press*"—Certainly of a delicate flavour..perfectly soluble.

"*Medical Annual*," 1889—Possesses an unusual degree of solubility, a full aroma, and is free from that acridity which such highly concentrated extracts usually possess.

Highly commended by other Journals and many influential members of the Profession.

Put up in 1-lb., ½-lb., and ¼-lb. tins (as illustration) and in 6d. square tins.

THE COCOA WORKS, YORK, ENGLAND.

The Medical Year.

OUR EXHIBIT AT THE MEETING OF THE BRITISH MEDICAL ASSOCIATION.

THE Annual Meeting of the British Medical Association, held in Leeds in August last, closed a year of considerable activity in all that relates to pharmacy, pharmacology, and therapeutics. Space permits but a passing notice of agents with which the year has made us somewhat familiar. Perhaps nothing indicates the growing conviction of medical men better than the dictum of one of the best living experimenters. He says: "The tendency of the present age is towards *mono* rather than *poly-pharmacy*, and prescriptions with the orthodox *adjuvans* and *corrigens* are less frequently seen than formerly." The logical outcome of this naturally is a demand for the purest drugs in the most eligible form. Old-fashioned excipients, sugar and other coatings, are fast becoming obsolete, and the beautiful tabloids of Compressed Drugs are in large demand.

In carrying out our experiments to perfect these Tabloids, we have devoted a vast amount of study and labour, and expended very large sums of money.

Our efforts to introduce our improvements have been strenuously opposed by those who simply copied (perhaps through lack of originality and barrenness of ideas) the antiquated concoctions of their more honourable and enterprising ancestors, who had, however, in reality, made but slight advance over the dark ages of pharmacy when lizards' skins and frogs' eyes were regarded as indispensable remedies. These antiquated forms which had answered for their ancestors they said were good enough for the present generation, and they resisted with all their might our innovations and improvements. But at last they realise that they are out of harmony with the spirit of the times, and find the resistance futile, and our success an accomplished fact.

Dr. J. A. Marston, Deputy Surgeon-General, in his official report on the International Medical Congress, says:—

"These Tabloids are not more expensive than the ordinary forms of administering medicines, as they can be made at a very small advance on the crude drug."

Instead of heroic doses, small ones, frequently repeated, are quite the order of the day with not a few; for, as Dr. Lauder Brunton says, this method has "the very great advantage that the desired effect can be produced with great certainty, and with less risk of an overdose being taken."

NOVELTIES AND IMPROVEMENTS.

TABLOIDS prepared by B. W. & Co.

Aconite Tinct., 1 min.
Aloin, 1-10 gr.
Ammon. Bromide, 5 and 10 gr.
Ammon. Chloride, 3, 5, and 10 gr.
Ammon. Chloride, with Borax.
Anti-Constipation { Aloin, 1-5 gr. Strych., 1-60 gr. Belladon. Ex., 1-8 gr. Ipecac., 1-16 gr.
Antifebrin, 2 gr.
Antimony Tartrate, 1-50 gr.
Antipyrin, 5 gr.
Apomorphine Mur., 1-50 gr.
Arsenious Acid, 1-100 and 1-50 gr.
Atropin Sulph., 1-100 gr.
Belladonna Tinct., 1 min.
Bismuth Subnit., 5 and 10 gr.
Blue Pill.
Borax, 5 gr.
Caffeine Citrate, 1 gr.
Calcium Sulphide, 1-10 gr.
Calomel, 1-10 and 1 gr.
Capsicum Tinct., 1 min.

Cascara Sagrada Ext., 2 gr.
Cascara Sagrada Ext. (dry), 1 gr.
Euonymin, ½ gr.
Nux Vomica Ext., 1-16 gr.
Cathartic Comp. U. S. P.
Charcoal, 5 gr.
Chloral Hydrate, 5 and 10 gr.
Cocaine, Potash and Borax, Voice.
Cretæ Aromat., cum Opio Pulv., 5 gr.
Digitalis Tinct., 1 min.
Digitalin., 1-100 gr.
Dover Powder. 1-4 and 5 gr.
Euonymin Resin, 1-8 gr.
Hydrarg. cum Creta (Grey Powder), 1-3 gr.
Hydrarg. Iod. Rub., 1-20 gr.
Hydrarg. Iod. Vir., 1-8 gr.
Hydrarg. Perchlor., 1-100 gr.
Hydrarg. Subchlor. (Calomel), 1-10 and 1 gr.
Hyoscyamus Tinct., 1 min.
Ipecac. and Opium (Dover Powder), ¼ and 5 gr.
Ipecac Powder, 1-10 and 5 gr.
Iron and Quinine Cit., 3 gr.
Laxative Vegetable.
Lithia Carbonate, 2 gr.
Manganese Dioxide, 2 gr.
Morphine Sulph., 1-20 and 1-8 gr.
Nitroglycerine.
Nux Vomica Tinct., 1 min.
Opium Tinct. (Laudanum), 2 min.
Papain, 2 gr.
Pepsin, Pure (Fairchild).
Pepsin Saccharated, 5 gr.
Peptonic.
Phenacetin, 5 gr.
Pilocarpin Mur., 1-20 gr.
Podophyllin Resin, ¼ gr.
Potash Bicarb., 5 gr.
Potash Chlorate, 5 gr.
Potash Chlorate with Borax.
Potash Nit. (Sal Prunella), 5 gr.
Potash Permanganate, 1 and 2 gr.
Potassium Bromide, 5 and 10 gr.
Potassium Iodide, 5 gr.
Quinine, 1-10, ¼, 1, 2, 3, and 5 gr.
Quinine Sulphate, 1 gr.
Iron Hypophosphite, 2 gr.
Acid Arsenious,
Strychnine Sulphate, aa 1-50 gr.
Saccharin, 1-100 gr.
Rhubarb, 3 gr.
Rhubarb, Comp. (Pil.), 3 gr.
Rhubarb, Comp. Pulv. (Gregory Powder), 5 gr.
Rhubarb and Soda, 5 gr.
Saccharin, ½ gr.
Salol, 5 gr.
Salicin, 5 gr.
Santonin, ½ gr.
Soda Bicarbonate, 5 gr.
Soda-Mint (Soda, Ammon., Carb., and Mint).
Soda Salicylate, 3 and 5 gr.
Strophanthus Tinct., 2 min.
Sulphonal, 5 gr.
Sulphur Comp. (Dr. Garrod's formula).
Tannin, 2½ gr.
Test Tabloids (Fehling's).
Thirst.
Tinct. Camph. Co. (Paregoric), 2 min.
Tonic Comp. { Iron Pyrophosphate, 2 gr. / Quinine Sulphate, 1 gr. / Strychnine Sulphate, 1-100 gr.
Trinitrine (Nitroglycerine), 1-100 and 1-50.
Trinitrine and Amyl Nitrite.
Trinitrine Comp. { Trinitrine, 1-100 gr. / Nitrite of Amyl, ¼ gr. / Capsicum, 1-50 gr. / Menthol, 1-50 gr.
Urethane, 5 gr.
Voice (Potash, Borax and Cocaine).
Warburg Tincture, 30 mins. in each.
Zinc Sulphate, 1 gr.
Zinc Sulphocarbolate, 2 gr.
Zymine Tabloids.
Zymine Comp. Tabloids.

These pure and palatable Tabloids of Compressed Drugs are supplied in convenient packages for dispensing, and at moderate prices.

Hypodermic Tabloids, prepared by B. W. & Co.—Authorities on Hypodermic Medication hold that the use of ready-made solutions of the alkaloids is the cause of the large proportion of the accidents that have occurred from injecting medicines under the skin.

Reason how we may, the alkaloids are at best unstable things, and to assert that in solution or on exposure they will not undergo change is to disregard facts entirely. To hold that none of them are affected by light is equally far from remark. That microscopic organisms develop as a rule in alkaloid solutions has been proven over and over again, and to the presence of these germs abscesses, indurations, etc., have been frequently attributed by the highest authorities. Time and again does the injunction occur throughout the pages of the works on Materia Medica that this and that active principle should be freshly dissolved for use. The most cursory observer must notice that with time his solutions undergo a very marked change, and it is hardly philosophical to at once conclude that the change is nothing. The most stable solution that has ever been introduced throws down a sediment after a little time, and the manufacturer of this solution deems it prudent to recommend that it be filtered, after standing awhile, before it is injected. Yet filtering does not remove all irritating foreign matter, as has been proved. Some of the ready-made solutions undergo such a change

B. W. & Co. Hypodermic Tabloid Pocket Case, fitted and filled complete (12 tubes of 12 or 20 Tabloids each), 15/-.

as to produce, when injected, effects contrary to those desired. A notable example of this, is a solution of Pilocarpine, which has been known to change into Jaborine, allied in its action to Atropine. After it had undergone this change, Pilocarpine would of course dry the skin instead of bathing it with profuse perspiration.

But some one may say: "I have used standing solutions without ill effects." The majority have not; and, as the patients have to take the bulk of the risk, should not the most scientific and safe method be employed in subcutaneous injections? A fact indisputable, that has been proved up to the hilt, is that the alarming accidents which are particularly liable to occur from the use of "ready-made hypodermic solutions," are not likely to happen, when the HYPODERMIC TABLOIDS are used.

DOSE LIST of HYPODERMIC TABLOIDS

Prepared by BURROUGHS, WELLCOME & Co.

Aconitin.—Dose, 1-260 gr., externally in neuralgia, shingles, etc.
Apomorphine.—Dose, 1-10 gr., as an emetic in catarrh, poisoning, etc.
Atropin.—Dose, 1-150 gr. to 1-60 gr., in pelvic pains, sciatica, etc.
Caffein Sodio-Salicylate.—Dose, 1-2 gr., in neuralgia, headache, dropsy.
Cocaine.—Dose, 1-6 gr. to 1-2 gr., in all minor surgical operations.
Codein Phosphate.—Dose, 1-4 gr., in diabetes, cough, pain of cancer.
Colchicin.—Dose, 1-100 gr., in gout, rheumatism, etc.
Cornutin (active principle of Ergot).—Dose, 1-60 gr.
Curare.—Dose, 1-12 gr., in hydrophobia, convulsions, tetanus, etc.
Digitalin.—Dose, 1-100 gr., in cardiac and renal disease (dropsy).
Ergotinin.—Dose, 1-150 gr. to 1-300 gr., in hæmorrhage, etc.
Eserin.—Dose, 1-100 gr., in ophthalmic practice, constipation, etc.
Homatropin (unirritating).—Dose, 1-250 gr., to dilate pupil, etc.
Hydrarg. Perchlor.—Dose, 1-60 gr. to 1-30 gr., in syphilis, carbuncles, etc.
Hyoscine.—Dose, 1-200 gr. to 1-75 gr., as a powerful cerebral sedative.
Hyoscyamin.—Dose, 1-80 gr. to 1-20 gr., in insomnia, nervous trembling convulsions.
Morphine Bi-Meconate.—Dose, 1-8 gr., 1-6 gr., 1-4 gr. to 1-3 gr.
Morphine Sulphate.—Dose, 1-12, 1-8, 1-6, 1-4, 1-3 to 1-2 gr.
Morphine and Atropine combinations.
Pilocarpine.—Dose, 1-10 gr., 1-3 gr., to 1-2 gr., as a powerful diaphoretic.
Quinine Hydrobromate.—Dose, 1-2 gr., in sunstroke, tropical fevers, etc.
Sclerotinic Acid.—Dose, 1-2 gr., to excite contraction of uterus.
Strophanthin.—Dose, 1-500 gr., in dyspnœa with cardiac dropsy.
Strychnine.—Dose, 1-150 gr., to 1-60 gr., in paralysis and gastralgia.

HYPODERMIC TABLOIDS of the principal drugs and alkaloids supplied to the medical profession in tubes, containing from 12 to 20 Tabloids each, price 1s per tube.

Iodic-Hydrarg.—This new antiseptic and germicide, now extensively employed in the St. Mary's, North West London and other Hospitals, is possessed of double the bactericidal power of corrosive sublimate, while it is less poisonous. Micrococci and bacilli in active growth without spores are soon killed by solutions of 1 in 40,000. Solutions of 1 in 2,000 will rapidly destroy the spores of bacillus anthracis and bacillus subtillus. The use of Iodic-Hydrarg. is especially adapted for midwifery practice. A solution of one part in 1,500 of water may be safely employed in obstetric and gynæcological practice for washing out the vagina. A solution of corrosive sublimate of the same strength is highly dangerous, and has in several cases caused death.

Supplied to the medical profession in 1*oz. bottles, at* 1*s. each.*

Lanoline (Liebreich).—Lanoline has now completely revolutionised the treatment of diseases of the skin, and is extensively prescribed by dermatologists. As a proof that its advantages are acknowledged even in the highest quarters, this well-known preparation has been officially introduced into the new Austrian Pharmacopœia. "If further proofs were needed they would be furnished by carefully examining the medical literature of the last few years, when it would be seen that most of the new remedies, when prescribed as ointments, have Lanoline as a base."

The readiness with which Lanoline penetrates the horny layer and is absorbed by the skin gives it precedence over all mineral oils. It is easily and perfectly miscible with all kinds of medicaments. Combined with a trace of carbolic acid it forms a most valuable application for irritation of the skin, relieving the itching of eczema, urticaria, etc., also the swelling and irritation due to the bites of insects.

Lanoline (Liebreich) tends to restore the pliancy of the skin, so deficient in advanced age, and removes the hardness and dryness so troublesome to many people; on this account Toilet Lanoline and Lanoline Cold Cream are very eligible toilet preparations. They also "conserve the heat which the old readily part with and less easily regain" (*Diseases of the Skin*—Jamieson).

Lanoline (Liebreich) supplied to the medical profession at 2s. 8d. per lb. Anhydrous Lanoline, 3s. 4d. per lb. Toilet Lanoline, 6d. per tube. Lanoline Cold Cream, 1s. 2d. per pot.

Lanoline Toilet Soap, containing the fat natural to the skin, is not only the best healing soap for wounds, &c., but also a delightful toilet accessory—it leaves the hands smooth and soft.

Lanoline Toilet Soap, 2s. per box of three tablets.

Unguentum Lanolini (Lanoline Ointment Base).—On account of its sticky nature, Lanoline was objected to by some physicians, but this objection has now been overcome by the introduction of a Lanoline Ointment base—Unguentum Lanolini—which is applicable wherever, formerly, lard or any other old ointment bases have been used. Its advantages may be summed up as follows:—1. It never turns rancid. 2. It is grateful to the tenderest skin. 3. It is non-sticky and can be readily washed off. 4. It is aseptic; no bacteria or microbes can live in it, or pass through a thin layer when spread over a fresh wound.

Unguentum Lanolini (Lanoline Ointment Base) supplied to the profession at 2s. 2d. per lb. Anhydrous Lanoline Ointment Base, 2s. 10d. per lb.

Hazeline.—This preparation has been tested by the most distinguished therapeutists of the day, and given precedence over all other preparations of *Hamamelis Virginica.* It presents advantages over them from the fact that it contains the volatile active principles of Witch Hazel—a distillate of the fresh twigs. Hamamelis contains little of value which is not volatile. Not only is a distillate more potent than any other preparation of the drug, but its properties are distinctly peculiar to itself, and of a value directly in proportion to its volatility.

Speaking of Hamamelis, RINGER says :—"It not only checks bleeding, but if this treatment is persisted in for several months, its action on piles that are not large is permanent."

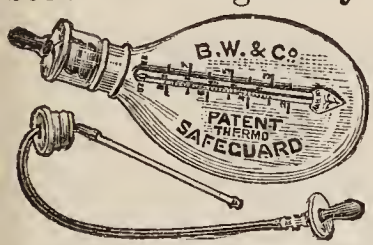
DIRECTIONS :—In catarrh or cold in the head, the Hazeline may be sniffed up the nostrils with an equal part of tepid water, or inhaled by means of Wallich's Improved Inhaler.

In ulcerative and diphtheritic sore throat, tender gums, toothache, bleeding sockets, employ as a gargle, or by means of the Wallich's Inhaler.

Supplied to the medical profession in ¼ lb. and 1 lb. bottles, at 1s. 2d. and 3s. 6d. each. Retail prices, 1s. 6d. and 4s. 6d. each.

The Thermo-Safeguard Feeding Bottle (B. W. & Co.)—As a Practical and Scientific Invention for protecting the lives of infants, nothing, except Fairchild's discovery of the pure Zymine Peptonising agents, has of late years approached in importance the Thermo-Safeguard Feeding Bottle.

One of the greatest dangers in the artificial feeding of young infants has been the irregularity and uncertainty of temperature. By the most intelligent nurses the temperature could only be determined approximately, while in most cases the life of the child has been endangered by allowing stupid and ignorant servants to guess the temperature, and only too fatal have been the results.



Artificial feeding of young infants is, under the most favourable circumstances, attended with considerable risk, but when the laws of nature are defied, then the risk becomes one of great hazard.

The Thermo-Safeguard Feeding Bottle has a thermometer imbedded in the glass in such a manner as to correctly and distinctly indicate the temperature of the contents.

This invention has been received with the highest favour by the leading minds in the medical profession, and, although but quite recently perfected, has proved a great success. It has a special adaptability in the process of peptonising milk with the Zymine Peptonising Powders (Fairchild). That they may come within the reach of all, we have fixed the prices at about the same as those charged for ordinary feeding bottes, viz., retailing at 1s., 1s. 6d., and 2s. 6d.

The *Edinburgh Medical Journal* says: "It is the best of all Feeding Bottles, and ought to be universally used."

Vaporoles.—These consist of beautiful little silken sacks enclosing very friable glass capsules, which contain the various well-known medicaments used for inhalation, and introduced into the Throat Hospital Pharmacopœia by Sir Morell Mackenzie. The glass capsule is surrounded with absorbent cotton, and when crushed may be dropped into a steam inhaler, the water-bottle of the Vereker Chloride of Ammonium Inhaler, or inhaled dry by holding in the palm of the hand, or in a handkerchief, according to the accompanying directions. Some Vaporoles are specially suited for fumigating purposes. Price 2s. per box of one doz.

Artificial Antiseptic Ear-Drum.—One of the most important inventions of the year in the way of medical appliances is the Artificial Antiseptic Ear Drum, designed by Dr. Ward Cousins, and made the subject of a paper read by this gentleman at the Leeds Meeting of the British Medical Association.

These Drums consist of delicate little Welsh-hat-shaped antiseptic fibrous skeleton drums of a texture sufficiently close to act as a substitute for the natural drum in cases of perforation, or to protect the natural membrane when in a sensitive or inflamed condition. Antiseptically, they are of great service in conditions of the middle ear attended with suppuration.

In cases of deafness through perforation they come as a special boon. An important feature is the ease with which these drums may be inserted and removed. The Artificial Ear-Drum is entirely the conception of Dr. Ward Cousins, from whom we acquired all rights; but to enable us to produce them at a reasonable price, we have devised an automatic machine which turns them out with great rapidity and at a very nominal cost. Three dozen Drums are put up in neat paper boxes to retail at a 1s. per box. Price to the profession, 8d. per box of three doz.

A Combination White-Metal Probe, with Nippers, designed by Dr. Ward Cousins, for inserting and removing the Ear-Drums, is supplied to retail at 1s.

Rectal Injectors for Ointment and Fluid Remedies to be applied to the Rectum in Hæmorrhoids and Pruritus Ani.—We are indebted to Dr. Ward Cousins for the idea of these new instruments; they are a decided improvement upon existing patterns. Price to the profession 3s. each, retail 4s. 6d.

The Pinol Dry Inhaler, designed by F. W. Loxton.—This ingenious little instrument is intended to replace the medicated steam inhalations so far as volatile medicaments are concerned. It consists of a shaped glass tube filled with absorbent sawdust. Upon this the medicament to be inhaled is dropped into the gauze end. Retailed at 1s. 6d. Price to the profession, 1s. 2d. each.

Vereker's (Chloride of Ammonium) Inhaler.—We have made several important improvements in this favourite Inhaler, not the least important of which is the new valve which prevents the possibility of blowing the water into the acid or ammonia bottles. Price to the profession, 7s. 6d. each, retail, 10s. each.

Sulphonal.—Among the new drugs we may specially mention the remarkable success of SULPHONAL as a safe and refreshing sleep producer. The most eligible form for administration is in Tabloids, which are best given at bed-time, dissolved in warm fluids.

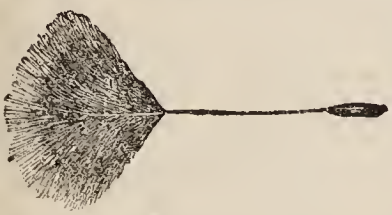
"It produces a natural sleep, from which the patient awakes refreshed, and without any bad after-effects."—*British Medical Journal.*

Professor Thomas R. Fraser, Edinburgh University, writes :—

"The form seems very convenient. I have used them with good results."

Supplied to the profession in bottles of 25 and 100 at 1s. and 3s. each.

Strophanthus.—The new heart tonic has constantly gained in reputation since the first reports published by Professor Fraser. As is well known, we were the first to secure this drug from Central Africa, and have maintained our position as the chief holders of the genuine and reliable seeds, and the principal makers of standard Strophanthus preparations. Strophanthus is now perfectly prescribed in the form of TABLOIDS. The false and unripe Strophanthus seeds, now so frequently offered in the market, should be carefully avoided. Supplied in bottles of 50 to 100, at 9d. and 1s. 4d. each.



STROPHANTHUS SEED.

Saccharin has survived all the violent attacks of the French Sugar Syndicate, and has won the grateful praises of many thousands of diabetic patients, to whom "sweet" in any other form was fatal. The greatest hindrance to its popularity has been the immense amount of cheap and adulterated stuff that has been foisted on the trade as pure Saccharin. There is no excuse for substitution of impure Saccharin when the B. W. & Co. pure Tabloids can be retailed in bottles of 100 at 9d.

Sulphur Compound Tabloids.—This is the most agreeable and active form for the administration of Sir A. Garrod's valuable formula, and the Medical Profession have shown the highest recognition of our product by prescribing it in preference to any other. Supplied in bottles of 25 and 100 at 5d. and 1s. 1d. each.

Fairchild Digestive Products have steadily advanced in favour with the Medical Profession, and now stand first and foremost, ahead of all rivals. The Zymine Peptonising Powders and Pure Pepsin (Fairchild) are now among the principal staples of every chemist. The former are specially adapted for use with the B. W. & Co. Thermo Safe-guard Feeding Bottle.

Beef and Iron Wine (Burroughs') maintains the high place as a nutritive tonic long since accorded it. Supplied in ½lb. and 1lb. bottles at 1s. 10d. and 3s. 6d. each.

Of our old standard preparations, **Kepler Malt Extract**, the *Lancet* has said : "It is the best and largest used ;" and of KEPLER SOLUTION OF COD LIVER OIL IN MALT EXTRACT the *British Medical Journal* says : "It is the ideal form." What more need be said? They are "the accepted of the *Elect*."

THE VERDICT.

Kepler Malt Extract, made from barley, contains all the choice restorative principles of this grain, which authorities agree is unequalled for the excellence and abundance of its carbo-hydrates, diastase, etc.

In his "Chemistry," Vol. I., Muspratt says:—"Any of the cereals may be employed in the preparation of malt, but barley is preferred for this purpose."

Albuminous Malts.—In manufacturing a malt extract of one part barley and three parts wheat, oats, rye, Indian corn, etc., three quarters of the nutrient constituents of the best possible of malt extracts is sacrificed for the sake of a little extra vegetable albumen, hardly equal to a sip of beef-tea.

In Miller's "Chemistry" we read,—"Other grains, such as wheat, oats, rye, and even Indian corn, may be malted, but experience has shown that barley is the grain best adapted to the process."

Carbo-hydrates.—It should be noted that in preparing malt extract, the design is not to make *vegetable beef-tea*, but rather to extract those proximate principles, for which alone mankind depends exclusively upon the vegetable kingdom In its abundance of these principles, barley stands unequalled, and for this reason is the Kepler Malt Extract made from barley only.

In making Malt Extract it is very clear that if any other cereal is substituted for barley, to that extent is the extract of something inferior for the purpose to barley.

Diastase.—"In the manufacture of malt, those grains only are used in which, during germination, diastase is developed, and among them *barley takes the first rank"* (BERSCH).

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EDITED BY

JAMES BRAITHWAITE, M.D. Lond.

OBSTETRIC PHYSICIAN TO THE LEEDS GENERAL INFIRMARY.
LATE LECTURER ON DISEASES OF WOMEN AND CHILDREN, LEEDS SCHOOL OF MEDICINE.
FELLOW AND LATE VICE-PRESIDENT OF THE OBSTETRICAL SOCIETY OF LONDON.
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A RETROSPECT OF NEW DRUGS, ETC.

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[The Editors of the RETROSPECT OF MEDICINE in issuing the One-hundredth Volume, tender their grateful acknowledgements to the many members of the Profession who have so greatly helped them in the past, and trust they will continue to honour them with their further confidence. They also beg to thank the numerous body of subscribers who have so steadfastly supported the work, which they hope has been a not unsatisfactory Record of the Half-Century's Medical Progress. Every care will be taken in the future as in the past to make the work worthy of its name and reputation.]

Leeds, January, 1890.

Synopsis.

AN ABSTRACT OF THE MOST PRACTICAL ARTICLES IN THIS VOLUME, WITH OTHER SHORT ARTICLES FROM THE MEDICAL JOURNALS, SHOWING THE MOST IMPORTANT INDICATIONS OF TREATMENT, PUBLISHED BY DIFFERENT WRITERS DURING THE HALF-YEAR.

ARRANGED ALPHABETICALLY.

GENERAL MEDICINE AND THERAPEUTICS.

ALBUMINURIA.—Its Relation to Life Insurance.

Dr. George Johnson appends the following conclusions to a paper read at the annual meeting of the British Medical Association, 1889. 1. The presence of albumen in the urine, though small in amount and occasionally intermittent, is always pathological. 2. The practice of testing the urine in all cases of ailments, even the most trivial—the importance of which I have for many years past insisted upon—has led to the detection of albuminuria in many youths and adolescents, who are especially liable to be exposed to the commonest of its exciting causes, namely, cold and wet and over-fatigue, and who have not lived long enough for the ultimate evil results of a neglected albuminuria to have become developed. 3. The albuminuria, whether intermittent or persistent, of persons apparently in good health has no such special features as to require it to be designated by such misleading terms as "physiological," "functional," "cyclical," and "the albuminuria of adolescents." The last term is especially inappropriate, since the condition is of more common occurrence in both sexes and at all periods of life, from childhood to extreme old age. 4. In almost every instance these cases of albuminuria may, by a careful inquiry, be traced back to some recognised exciting cause. 5. Nearly all cases of acute nephritis pass through the stage of intermittent albuminuria in their progress towards convalescence, and, on the other hand, the majority of cases of intermittent albuminuria may be traced back to a more or less remote attack of acute nephritis. 6. While, on the other hand, intermittent albuminuria—even though it may have existed for years—may be looked upon as a curable condition if only its exciting causes can be ascertained, avoided, and counteracted by suitable dietetic, medicinal, and hygienic means: on the other hand, the neglect of such means may convert an intermittent into a persistent albuminuria; and a persistent albuminuria, although for many years it may be unattended by symptoms of disordered health, ultimately results in a fatal degeneration of the kidneys. 7. Since it is notorious that albumen, even to a very large amount, may exist in the urine

of persons who are apparently in perfect health, it is obvious that the urine of every patient, no matter how apparently trivial his ailment, and the urine of every applicant for life assurance, no matter how robust his appearance, should be tested for albumen. 8. For many years past the fact that albumen may be abundantly present at one period of the twenty-four hours and entirely absent at another has been publicly demonstrated, and ought to be generally known. It is, therefore, necessary to test the urine, not only after rest in bed and before breakfast, but also after food and exercise. (British Medical Journal, Aug. 24, p. 421.)

Albuminuria.—Its Relation to Life Insurance.

In a discussion upon this subject at the annual meeting of the British Medical Association, 1889, Dr. Gairdner said that for a good many years he had been accustomed to examine the urine personally in every case of a proposal for life insurance, besides having brought under his notice from day to day the results of very numerous observations made in hospital upon a great number of miscellaneous cases in which the urine was examined as a matter of routine by the assistants. The results of this inquiry he did not propose to submit in detail, nor was he, indeed, able to do so; but the result of it all, taken in connection with all that he had seen, or heard, or read upon the general subject, was that, when the ordinary or old tests of serum albumen were used, the occurrence of albumen in cases otherwise wholly unexceptionable from the view of life insurance was so far from universal as to make the term "physiological albuminuria" one in all probability misleading, and therefore undesirable to use. Dr. Pavy had alluded to the case of Weston, a man presumably healthy and well organised, who, in walking for a wager, had albumen in his urine. The just inference from that case, taken by itself, would not be that the albuminuria was physiological, but that walking for a wager after Weston's method was unphysiological. And so with the cases reported by Sir Andrew Clark, showing that a large proportion of youths cramming for the examinations of the Civil Service were at least temporarily albuminuric. It is not necessary to maintain that the albumen in these persons always indicates serious disease, but it certainly shows that cramming for examination is not physiological. The term "functional albuminuria" is not open to the same objections, regard being had always to the difficulty of distinguishing, either during life or after death, what is functional and what is structural. The result of the whole in Dr. Gairdner's mind is that, while he freely admits a functional albuminuria (subject to the qualification just alluded to), he is altogether sceptical, or more than sceptical, as to physiological albuminuria. Considering this practically in relation to life insurance, Dr. Gairdner said that he could not find a more just or accurate expression for his opinion than to say that serum albumen, when present in the urine even casually, must be regarded

as a danger signal. As to the amount of danger implied in the fact in particular cases, he was neither pessimistic nor optimistic. He was able in a general way to accept Dr. Pavy's conclusions both as to the significance of the fact and the other circumstances to be taken into account in forming a prognosis. The only result that inevitably follows, or should follow, from ascertaining casually the fact of albuminuria in a case otherwise acceptable, is that judgment must be postponed for a period varying, according to circumstances, from weeks to months. It may be that the circumstances are such as to show, or to render it highly probable, that the occurrence is a purely casual and almost accidental one. It may be, on the other hand, that a long period of probation may be required, or that the danger is shown after a time to be such as to put an end to the negotiations. Having regard to the comfort as well as the real interest of the proposer, Dr. Gairdner has frequently thought it right to communicate, privately or otherwise, with the ordinary medical attendant (if attainable), indicating to the proposer at the same time that there is a flaw, but it may be quite a slight or temporary one, and that it requires to be investigated in the interest of the office, which is also in the end his own interest, as his medical man will explain to him. (Ibid. p. 422.)

Albuminuria.—Its Relation to Life Insurance.

At the Annual Meeting of the British Medical Association, 1889, Dr. Saundby said he was a firm believer in the innocent character of albuminuria in certain cases, and therefore would gladly see some change in the present practice of the majority of insurance companies, if it could be brought about with due regard to their interests. He thought medical examiners were fully justified in rejecting all cases of albuminuria possessing any of the following features: (1) a history of Bright's disease in a parent or in any two near relatives; (2) a personal history of past acute nephritis; (3) a history of plumbism or gout; (4) cardiac hypertrophy, hard pulse, and frequent nocturnal micturition, or retinal changes; (5) where the age was over 40 years; (6) where the urine deposited casts; (7) where there was chronic dyspepsia. The type of case which he thought might unquestionably be accepted was that in which the albuminuria disappeared when the patient resumed the recumbent position, and in consequence was absent from the urine passed on getting out of bed in the morning. This usually occurred in overgrown, loosely-made people, but they were insurable lives. He thought Dr. Pollock, in his recent work (*Medical Handbook of Life Assurance*) went further than was prudent in accepting (see paragraph 269) lives with albuminuria due to an antecedent nephritis. On the other hand he did not think Dr. Fraser, in his recent memorandum for the use of the Standard Insurance Company, went far enough. He deprecated very strongly frequent re-examinations at short intervals; they were generally useless, and consequently

disappointing to the applicant. It was much kinder to defer the case for six months at once. With respect to tests, he was convinced that nitric acid often failed to disclose the presence of small quantities of albumen, and the superiority of acetic acid (dilute acetic acid in his opinion was the best) for this purpose had been fully admitted by the principal authorities on the subject. He believed that other innocuous forms of albuminuria existed, but they were at present badly defined, and their prognosis at least unascertained. He should be content if the insurability of cases of mechanical albuminuria was admitted, subject to the limitations suggested. At any rate, he felt sure that it was a step that would not have to be retraced. (Ibid. p. 423.)

[See also Dr. Pavy's article on this subject at p. 137 of this vol.]

ANTIFEBRIN AS A POISON.—(*Edinburgh Med. Journal, April* 1889.) A case of poisoning by antifebrin is published by Dr. C. S. Freund, of Cologne, in the *Deutsche Medicin. Wochenschrift*, XIV,, p. 41, 1888. A man, aged 29, took 6 grammes (92 grains) of antifebrin in two equal doses within four hours. Alarming cyanosis supervened, extending even to the point of the nose and finger nails, and the pulse became greatly accelerated. The cyanosis passed off slowly, but had disappeared in three days. The blood was found unaltered both to microscopic and to spectroscopic examination. The urine was not increased, nor was it characterised by any special change in colour, though its specific gravity was diminished. This case, as the reporter (in Schmidt's *Jahrbücher* for January 1889, p. 19) remarks, shows the comparatively non-fatal effect of even excessive doses of antifebrin when administered in non-febrile cases. In fever cases, however, unpleasant symptoms are proportionately much more frequent. Dr. Leo Löwenthal, in Frankfort-on-the-Maine, and Dr. Kronecker, in Berlin, reported in the September number of the *Therap. Monatschrift*, 1888, cases in which great depression followed the exhibition in pyrexia of even small doses of the drug. Large, however, as is the above dose of 6 grammes in four hours, it has been exceeded by Dr. Simpson, of New York, who (*Philadelphia Med. and Surg. Reporter*, Nov. 10th, 1888, p. 586), for the sake of experiment, took 100 grains in seven single doses within two hours and a half. (Medical Chronicle, Aug., p. 405.)

Antifebrin in the Urine.—Ready Method of Determining. In connection with this subject, a ready method of determining the presence of antifebrin in the urine is noted in the *Philadelphia Med. and Surg. Reporter* as above. This method depends on the production of the iodophenol reaction whereby aniline is formed, antifebrin itself offering great resistance to chemical reagents. The detail is:—Mix the urine to be examined with one-quarter of its volume of concentrated sulphuric acid, and boil for some time. After cooling, add one drop of liquid carbolic acid and a few drops of a solution of

chloride of lime. If antifebrin be present, a red coloration appears, which, by addition of ammonia, turns to a beautiful blue. (Ibid.)

ANTIPYRIN AND ANTIFEBRIN IN ENTERIC FEVER.

At the meeting of the New South Wales Branch of the British Medical Association, May, 1889, Dr. Scott Skirving said: In these two drugs we have, undoubtedly, a potent means of lowering temperature. My experience of them has been chiefly in typhoid fever, but in pneumonia, peritonitis, and the exanthemata I have found them of value. Now as to enteric fever. I have, up to now, arrived at the following conclusions:—1. Neither of these drugs curtail the life history of the fever. 2. Although the temperature may be lowered it again rises, in antifebrin, I believe, higher than before. 3. Both drugs may produce urgent symptoms of collapse, markedly antifebrin, and the dose should be very small to allow for idiosyncrasy; $\frac{1}{2}$gr. of antifebrin for a child of $3\frac{1}{2}$ is not too small a dose to begin with, antipyrin can be used more boldly, 3gr. for a child of five being a fair thing. I have, as you will see by these charts, used that dose in children when temperature rises over 103° repeated every six hours. 4. I believe that on the whole the routine treatment of a continued fever by chemical antipyretics is a vain thing. The most useful applications of such drugs as those under discussion is for emergencies, where, either as an incident in the history of typhoid, or in the initial pyrexia of an acute inflammation or an exanthem, danger to life is present by reason of the pyrexia, which, being for the time avoided by the bold but careful use of a chemical antipyer, is not likely to recur. (Australasian Medical Gazette, June, p. 238.)

CANCER.—Morphine-Vaseline as a Local Application in.

Morphine combined with vaseline forms one of the best possible sedative applications in cases of external malignant disease, in which there is ulcerative breach of surface with continuous pain. The mode of prescribing the preparation runs as follows:—Vaseline, pure, ℥j; chloroform ℥ij; morphine gr. iv. Mix thoroughly and make into an ointment. By using the chloroform a larger quantity of morphine can be introduced than if the alkaloid were used alone, the distribution through the mass being more complete. The chloroform, in the proportions named, causes, as a rule, no irritation, but acts rather as a sedative. Chloroform also is a powerful antiseptic, and as such is a good remedy in the class of case under consideration. Morphine-vaseline is most conveniently applied thinly spread over a piece of fine lint or soft linen. It is easily removable without injury to the surface upon which it is applied, and it may, therefore, be used even on surfaces from which the danger of hemorrhage is foreseen. The dressing may be renewed twice in the course of twenty-four hours. (Dr. B. W. Richardson, Asclepiad, No. 22, 1889, p. 147.)

CANCER OF THE BREAST.--Causes of Local Recurrence of Cancer after Extirpation of the Mammary Gland.

At the Congress of the German Society of Surgery held at Berlin, April, 1889, Dr. Heidenhain of Berlin, read a paper on this subject. He had made an histological examination of eighteen cases of cancer of the mammary gland for primary cancer. In all cases in which there had been a recurrence he was able to make out by microscopical examination that fragments of cancer had remained in the wound after the operation. If it is easy to see infiltrated lymphatic glands, it is not easy to see by the naked eye if the tumour has been completely removed. In the eighteen cases which he had examined he had tried to ascertain whether in the section of the tumour which was in contact with the healthy tissues, he would find healthy or diseased tissue; on the presence of healthy or diseased tissue would depend the recurrence of the disease. He examined in this manner several fragments of each tumour; in twelve cases he had found the tissues infiltrated with epithelial rays, and out of these twelve cases there had been eight recurrences, one death as a result of the progress of the cancer in the other non-operated mammary gland, another patient had disappeared, and the two others remain well. In six cases he had found only healthy tissues, and in those six cases the carcinoma has not reappeared up to date. In cancer of the breast, the epithelial extensions follow the lymphatic vessels, and extend often to the pectoral aponeurosis; it is, therefore, very important to take away the aponeurotic covering of the pectoral muscles, and even to cut into the muscle so as to be sure that the lymphatic vessels, which cross the aponeurosis perpendicularly, are not infected. For a long time Dr. Küster has been in the habit of taking away this aponeurosis, because of the bad prognosis presented by cancerous tumours which are adherent to the pectoral aponeurosis. Out of sixty-five cases in the practice of von Volkmann in which the tumour was adherent to the pectoral aponeurosis two were cured, and in all the others the disease has returned. Out of twenty-one cases of the same kind operated on by Küster, but a single one is still alive, and she has a return of her trouble; hence, when the tumour is adherent, it is well to take away a good part of the muscle and to clean it thoroughly, so as to be sure that the whole growth has been removed. (Medical News, June 1, p. 614.)

CREOLIN as an Antiseptic.—German Opinions.

Creolin is being actively discussed on the Continent at present, as well as in this country. Whether it will stand the test of the rigid examinations to which it is being subjected, remains yet to be seen. The main point of discussion is whether creolin is an antiseptic or not. German authorities seem specially interested, and their opinions are quoted at length in many medical journals.

Dr. P. Baumgarten (*Centralbl. f. Bact.*, vol. v., No. 4, 1889) states that he has found it to be a strong animal poison and also an

antiseptic, yet only in solutions of a strength that would be fatal to animal life.

Dr. Behring (*Deutsche militärerztl. Zeitschrift*, 1889, p. 337) comes to the conclusion that creolin possesses antiseptic properties three or four times as weak as those of carbolic acid in solutions of similar strength. A two per cent. solution of creolin will not disinfect wounds. The drug is not so poisonous as carbolic acid.

Dr. Eisenberg states that he has found two per cent. to five per cent. solutions of creolin to be powerfully antiseptic; killing almost immediately streptococci, staphylococci, cholera bacilli, and other bacteria. He prophesies a brilliant future for the drug. Seidel and Hörnicke agree with Eisenberg, and consider ten per cent. creolin gauze or cotton to be an admirable substitute for bichloride gauze. The former preparations may now be purchased in the German market.

Hünermann, as the result of a long series of investigations, states that creolin has no right among antiseptics. It undoubtedly retards and in some cases even prevents the further growth of bacteria, but does not kill them. Koch's experiments have proved that the oil of mustard in weak solutions may hinder the growth of bacteria, yet no one would for a moment regard it in the light of an antiseptic, yet this, he claims, is what is being done with creolin.

Dr. Kortürn (*Centralbl. f. Gynäk.*, No. 6, 1889) and Dr. Bunsen have tried the drug in obstetrics, and say that they have found it a most admirable antiseptic. They claim that it is not so irritating as carbolic acid, and that it also possesses styptic properties. Kortürn uses wet creolin gauze exclusively for plugging the uterine cavity in cases of severe hemorrhage. For washing the vagina, Bunsen uses only a one-half per cent. solution. He states also that a two per cent. solution immediately kills pediculi pubis.

Dr. Rausche (*Deutsche med. Wochenschrift*, April 25, 1889) highly lauds the deodorising properties of creolin and uses it as an application for burns, superficial wounds, etc. He also advocates its use in the form of creolin soap, for cleansing and deodorising the hands after operations.

Drs. Amon and Prutscher have used a weak solution of creolin in optic and aural surgery to great advantage.

Purjesz (*Pester Med.-chir. Presse*, No. 11, 1889) treated several cases of suppurative inflammation of the tympanic cavity with creolin with marked success, using five or six drops of pure creolin in a pint of water as a wash. Otitis media was also treated in the same manner with success.

Späth, Pieskoff, and others, have used it advantageously in diseases of the throat, nose, and larynx, either in the form of powder of varying strengths, or in glycerine, or as a wash in the following formula:—℞. Creolin 1 part; menthol 1 part; water 500 parts. (Medical News, June 1, p. 602.)

EXALGINE.—A New Analgesic.—(DUJARDIN-BEAUMETZ & BARDET.) Under the name of exalgine, or ortho-methylacetanilide, is described a new analgesic, a derivative of the aromatic series, which was recently discovered by Brigonnet, and which formed the subject of an interesting communication to the French Academy of Sciences by Drs. Dujardin-Beaumetz and Bardet. Exalgine (*ex* privative, and *algos*, pain) has the formula of $C_9H_{11}NO$, and is one of the three isomeric methyl derivatives of acetanilide (*Compt.-Rend.*, cviii. 571). It occurs in needles, or in long tablet-like crystals, according as it is obtained by crystallization or from the mass after fusion. It is sparingly soluble in cold water, quite soluble in hot water, and readily soluble in very dilute alcohol, or in water to which a small amount of alcohol has been added: it fuses at 101° C. As regards its physiological action, it seems closely allied to antipyrin, although its effects upon the sensorium are more marked than the latter, while it exerts a less marked action as an antipyretic. The characteristic results are said to be obtained after an administration of a dose of from 4 to 6 grains, given at once, or from 6 to 12 grains, taken in two doses in the course of twenty-four hours, the analgesic effect being claimed to be very marked in all forms of neuralgia, including visceral neuralgia, even being superior to that of antipyrin (*Pharmaceutical Journal and Transactions*, March 30, 1889). No gastro-intestinal irritation, rash, or cyanosis has been noticed after its administration, and it, therefore, would appear to be free from the disagreeable after-effects which appear in certain cases after the use of antipyrin and acetanilide. The toxic dose is stated to be 7½ grains for every two pounds of body weight, death apparently resulting from paralysis of the respiratory centre. It is noted that after the physiological effect of the drug has been developed, while painful sensations are destroyed, the tactile sense remains unaltered. Exalgine is eliminated by the urine, upon the quantity of which it exercises a marked effect, acting like the antipyretics of the same group, diminishing the quantity of the secretion (*National Druggist*, April 15, 1889.) In diabetes it also reduces the quantity of urine and of sugar eliminated. Like all of the derivatives of the aromatic series it is antiseptic and antithermic, as well as analgesic, though the latter property is the more marked and may be developed in doses of less than half as great as antipyrin. The following are the formulæ for its exhibition, as given by M. G. Bardet in *Les Nouveaux Remèdes* for March 24, 1889:—

Antineuralgic potion of Exalgine.—℞. Exalgine ʒi; Kirschwasser ʒx; simple syrup, ℥i; distilled water, sufficient to make, ℥v. Dissolve the exalgine in the kirsch-water and add the syrup and water. Dose from 1 to 3 tablespoonfuls in the course of the day.

Solution of Exalgine.—℞. Exalgine, ʒi; rum, ʒx; distilled water, sufficient to make, ℥v. Proceed as before. The dose is the same as above. (Therapeutic Gazette, May 15, p. 339.)

GOUT.—Ebstein's Treatment.—(*Berlin. Klin. Wochensch.* 1889.)

Ebstein of Göttingen treats of the causes, symptoms, and treatment of gout. He points out the interchangeability of gout in many cases with stone, obesity, polyuria, and diabetes mellitus. His treatment is simple: moderate feeding, not denying patient good butter; plenty of water, alkalescent if necessary or wished; abundant use of fruit, such as cherries and strawberries. Great quantities of water are not, however, to be taken, being neither advantageous to stomach nor patient. The diet being so regulated that intake and output are in equilibrium; measures and manipulations which promote the circulation of the juices must also be adopted. He considers alcoholic drinks harmful, not only when one is actually gouty, but also in one predisposed merely. They should be forbidden in every form unless conditions of debility arise and call for them as well as other stimulating means. If gouty people would only follow this advice about alcohol, they would spare themselves many a pain and many a "Kur," which can never render such service as abstention from alcohol, and never can thoroughly repair the damage which alcohol has occasioned. In the treatment of the actual gouty paroxysm, colchicum, and more recently soda salicylate in 8 to 10 gramme doses per day, play the principal part. Some praise the former as a never-failing panacea, and others find it useless or even harmful. It is the same with the salicylate, and Ebstein has seen it cause the gout to promptly disappear from a joint only to crop up in another. At the present time we as little possess a specific against the gouty paroxysm as against the gout. Nevertheless he thinks it important (together with a rational intelligent dietetic and symptomatic treatment, which must not weaken the patient) that as long as the general symptoms and violence of local conditions will permit, the patient should not be condemned to absolute rest, but according to his actual condition appropriate means must be enforced to secure the circulation of the fluids in the diseased parts. (Dr. Troup's Periscope, Edinburgh Medical Journal, July, p. 85.)

HYDRACETIN.—A new Antipyretic.—(*Wiener Med. Presse,* 1889.)

Dr. Paul Guttmann, in the Meeting of the Berlin Medical Society of May of this year, reported the results of his investigations with hydracetin, a new antipyretic. The drug is a white powder, odourless and almost tasteless, soluble in water only in proportions of one to fifty, however easily soluble in alcohol. Four to eight grains injected into a rabbit's peritoneum caused the animal's speedy death. Autopsy showed that death was caused by the powerful reducive and absorptive effect the drug had on the oxygen in the blood. Doses of one and one-half to two grains a day were sufficient to reduce the temperature 2° to 3½° F., and to cause profuse perspiration. One dose would keep the temperature down for five or six hours, after which it rose again with moderate rapidity. Guttmann

has used the drug in a large number of cases of typhoid fever, phthisis, scarlatina, erysipelas, acute miliary tuberculosis, septicæmia, and also in eight cases of typical and severe multiple acute articular rheumatism. The action of hydracetin was always the same and accompanied with positive results. In acute articular rheumatism doses of less than a grain gave almost immediate relief to the pain, which lasted for several hours. Hydracetin found further use in two cases of psoriasis, in which a salve containing ten per cent. of the drug was used for less than a week, complete recovery resulting. In two cases of sciatica one-grain doses of hydracetin had a most happy anodyne effect, which lasted for several hours. No unpleasant accompanying or after-effects were even observed to follow its use, further than a slight and temporary pallor of the face. Guttmann is of the opinion that not more that one and a half or two grains should be given daily. In cases or severe fever, such as typhoid, the above amount should be given in one dose, or in two doses an hour apart from each other. In articular rheumatism two daily doses of about three-quarters of a grain each seemed to be followed by the best results. The daily administration of one and a half or two grains should not be continued for over three days; after an interval, however, its use may again be resorted to. The drug is equally valuable either as an antineuralgic or an antipyretic. (Medical News, July 6, p. 9.)

LEAD POISONING.—The More Obscure Results of.

Much of the anæmia and physical degeneration apparent in large towns is largely due to the constant drinking of small quantities of lead, the amount of lead palsy and lead colic being by no means a true indication of the real amount of lead poisoning in any district. Soft waters are those to be avoided. Spring water is more wholesome for drinking purposes; but if some springs act on lead they should be avoided. The temperature of the water, too, is an important matter, as warm water takes up lead more quickly than cold. Soft waters act upon lead, and are, therefore, dangerous. Professor P. F. Frankland (Dundee) condemns all upland surface water, as not containing sufficient permanent hardness to render it inert; while Mr. Allen (Sheffield) attributes its action on lead to the presence in it of a free acid. New pipes are always dangerous, but with some waters the danger soon ceases—in two or three weeks or even less—an insoluble crust coating the inside of the pipe. An intermittent supply is bad, as any crusting or coating in the piping becomes dry and rubbed off by the entrance of the water; a fresh surface of lead is thus exposed to the action of the water, and the pipes have to go again through the same protective process as new pipes. The only reliable filter to remove lead from water is one of charcoal; even this soon becomes inert, and requires more cleaning than the ordinary householder can give it. In the case of soft waters the filtering should be done at the reservoir, and their con-

dition made such that they may safely pass through lead pipes without contamination. The only safe water for domestic use is spring water of sufficient hardness that it will not take up lead under any circumstances. Soft water may be better for manufacturing purposes, but that should not be considered if the water is destroying the health of the inhabitants of the district supplied. One danger of drought is that it tempts the authorities to catch the surface-water too soon to turn it into the reservoir. The water should first percolate through the soil, there dissolving ingredients which give it sufficient hardness to resist the taking up of lead in solution. Another danger of drought, namely, that of the intermittent supply, has been already mentioned. Lead poisoning generally occurs more frequently in summer than in winter, and this is supposed to be due to the fact that in summer the water is warmer, and consequently acts more powerfully on lead. (Dr. T. B. Fairclough, Medical Officer of Health, Kirkby Stephen; British Medical Journal, August 31, p. 461.)

MENTHOL as an Antineuralgic.—Its Uses Internally.

The *Wiener klin. Wochenschrift* of March 7, 1889, states that menthol, which, on account of its great anodyne action, has been largely used as a local application, has of late been administered internally as an antineuralgic in hemicrania, infraorbital neuralgia, and headache, as well as for the relief of the pain of rheumatism and sciatica, in doses of from four to fifteen grains.

Dr. Mac. Laury (*Therap. Gazette*) gives the following prescriptions for the administration of this preparation: ℞. Alcohol ℥j; menthol ℈ij; glycerin, simple syrup āā ℥j. M. One teaspoonful in warm water when required.—℞. Menthol ℈j; sugar of milk grs. ix. M. Administer in 12 capsules; one or two capsules to be taken daily.

Menthol can also be combined with antifebrin and antipyrin, as in the following: ℞. Menthol, antifebrin āā ℈j; sugar of milk q. s. M. To be divided into 24 powders, administered in capsules; two capsules to be taken daily. (Medical News, April 6, p. 377.)

NAPHTHOL as a Local Antiseptic.—Formulæ for.

Naphthol is much used abroad as an antiseptic. Dr. Charles Eloy suggests the following convenient formulæ for its employment in the *Gazette Hebdomadaire,* April 19, 1889.

The following is for a *weak solution*:—Naphthol βxv gr.; alcohol (60°) xxx f. oz. It may be used upon hairy regions which it is desired to render aseptic.

A *strong solution* may be made as follows:—Naphthol β cl-ccxxv gr.; alcohol (60°) xxx f. oz. It serves to disinfect denuded cutaneous surfaces.

For *injections,* the solution should be prepared warm, and subjected to a mild temperature. Before injecting it into serous cavities, therefore, and into abscesses it will be prudent to heat the

syringe previously. The following is a formula :—Naphthol β cl. gr.; alcohol (90°) iiss f. oz.; water iii f. oz. v dr.

As a *mouth wash*, some drops of the following solution may be used in a glass of water :—Botot water ii. f. oz.; naphthol β ix gr.

For *purposes of friction*, camphorated naphthol may be used. This last is obtained by triturating to liquefaction the following :—Pulverised camphor 2 parts; pulverised beta naphthol 1 part.

Dr. Desesquelles has recommended as a *topical antiseptic* a mixture of one part of powdered β naphthol with two of the powdered camphor. The two are triturated together, dry, until they unite to form a colourless or creamy liquid.—*Medical and Surgical Reporter.* (Medical Chronicle, Sept., p. 486.)

RHEUMATISM IN CHILDHOOD.—Treatment.

Almost the whole interest and importance of rheumatism in children centres in the cardiac inflammation and its results. The one great aim and object of treatment should be to minimise this danger as much as possible; and the first point which I would urge is the necessity of being constantly on guard against an insidious attack of endocarditis or pericarditis. I have shown how it may accompany the slightest articular affection; may even arise without accompanying arthritis of any kind, associated with a chorea, or an exudative erythema, or an eruption of subcutaneous nodules; or it may arise apart from any known rheumatic phase, with an indeterminate febrile attack of apparent insignificance. It is essential, then, to examine the heart carefully in every case of the slightest articular affection—even a stiff neck or a stiff knee; and in chorea, in tonsillitis, in erythema, in an evolution of nodules, and, indeed, in every pyrexial condition of every form. Whenever there is suspicion of rheumatic inflammation—even if no cardiac affection be perceptible—enforce absolute rest in bed. Complete physical repose and external warmth are of the first, possibly of vital, importance. Cases of slight rheumatism are, as a rule, treated far too lightly by both parents and doctors. What a vast difference it would have made in the future condition of the schoolboy, H. G., for instance, if, instead of being allowed to follow his athletic sports, and thus strain his heart's muscle and court fresh chill, he had been kept secure in rest and warmth. Dr. Sibson found that a much larger proportion of cases—more than two to one—treated by absolute rest escaped permanent heart mischief than those allowed free action. With regard to drugs, I may point out that the heroic treatment by large and repeated doses of salicylate of soda is rarely called for in the rheumatism of children, since the articular affection is usually slight, and the pyrexia as a rule not severe; for the salicylates appear to exert no favourable influence upon any rheumatic phase, except only arthritis and tonsillitis. Salicin may be given in place of salicylate of soda in most articular cases with advantage, as being

less depressant—and with the salicin, alkalies. The general evidence of the statistics of the Collective Investigation Committee supports the conclusions of Dr. Fuller and Dr. Dickinson, that cardiac inflammation is less frequent and pronounced under their influence than under any other form of treatment. It would be interesting to note how full treatment by alkalies affects the development and duration of subcutaneous nodules, a point not yet ascertained. (Dr. W. B. Cheadle's *Harveian Lectures*, Lancet, May 11, p. 926.)

RHEUMATOID ARTHRITIS.—Aix-les-Bains Treatment in.

It is in the treatment of cases belonging to this class of maladies that the course at Aix-les-Bains is peculiarly successful, not only in ameliorating at the time the condition of the patient, but in removing the tendency to the disease from the system. The effect of the Aix waters is by no means confined to the period of their administration, but the improvement often continues for several months; and now and then a patient, who may be disappointed at the termination of the course, after a short time has full reason to feel satisfied. I have seen numerous cases of rheumatoid arthritis most signally benefited by the treatment, and in many of these the disease seems to have been completely arrested, and no relapse has occurred after several years. To effect this amelioration in cases of rheumatoid arthritis several influences are at work: first, that of the hot sulphur mineral douche; secondly, the massage accompanying the douche; thirdly, the internal exhibition of the sulphur water, whether it be the Aix water or that from Marlioz or Challes. These, together with the climatic influence, produce an effect on the system which is most valuable. My own experience leads me to think the Aix course, if properly pursued, is not debilitating, or, if a feeling of relaxation is produced at first, it is by no means permanent. I have been frequently asked why Turkish baths should not prove equally as beneficial as the Aix treatment in cases of rheumatoid arthritis. My own experience enables me to say with confidence that, however useful they may be in other forms of articular disease, in this special affection their use is certainly not indicated, but strongly to be condemned, and I have seen in many cases much injury done by them; in one case—that of a young woman, to whom they were cruelly exhibited for thirteen weeks, and often twice in the day—hopeless crippling was induced, and almost every joint in the body became completely ankylosed, so that she could neither stand nor sit in a chair without being propped up with pillows. Patients and their friends are apt to be deceived by the fact that when taking the Turkish bath, and even for a short time afterwards, the pains are often relieved, but no permanent benefit is obtained; the subsequent mischief is in proportion to the debility induced. I do not wish for a moment to be supposed to consider the Aix course as a certain cure; there are many cases in

which the nutrition of the body is so hopelessly undermined that no treatment has a chance of proving effectual, either in removing the symptoms or checking the progress of the disease; and, moreover, we must not trust to the mineral water alone, for I am confident that medicinal and dietetic treatment, continued over a lengthened time, is most essential. We must not lose sight of the fact that rheumatoid arthritis is essentially a slow but progressive disease, and a few weeks' treatment cannot be relied on to produce a permanent cure; of this, however, we may feel sure, that everything which causes debility tends to increase the rheumatoid arthritic condition, and that everything which improves the general state of health has at the same time a tendency to lessen the disease. (Sir Alfred Garrod, M.D., Lancet, May 4, p. 870.)

ROBURITE.—Clinical Manifestations of Poisoning by.

In the Medical Chronicle for May, 1889, Dr. Ross publishes the narratives of six cases of poisoning by "Roburite," a new explosive used for blasting in coal mines. The cases, all of which recovered, occurred in the practice of Mr. Berry, of Pendlebury. The following is an abstract of Dr. Ross's summary of the clinical manifestions.—The first symptoms to attract the observer's attention were the extreme degree of anæmia from which these, otherwise robust men, were suffering, and the bright blue tint of their lips. The large deposit of urates, and the traces of biliary pigments found in the urine of some of these patients, may most probably be taken as evidence that a great destruction of the hæmoglobin had taken place, not only when they were exposed to the action of the poison, but also for many days after they had ceased to work with it. But the symptoms which interested me most were the numbness and tingling of the hands and feet; the local asphyxia of the fingers on exposure to cold, and especially on dipping them in cold water; the muscular weakness, and particularly the difficulty experienced in executing certain special movements of the fingers; and the sluggishness or absence of the patellar-tendon reactions, all these being the well-known symptoms of the early stage of peripheral neuritis. The clinical features of these cases, indeed, reminded me of the symptoms caused by exposure to the fumes of bisulphide of carbon, as used in india-rubber factories, examples of which I reported some time ago. Having now identified the nervous phenomena in these cases with those of peripheral neuritis, I shall not enter upon a further analysis of the symptoms. I will only notice, in conclusion, that in two of the cases, Mr. A. E. Berry discovered the presence of a slight degree of hemi-anæsthesia. This symptom has also been met with in chronic poisoning by lead, and by bisulphide of carbon; it is most probably always of hysterical origin, or it is at least a functional nervous symptom induced by the general deterioration of health, which so surely results from the prolonged action of these poisons. (Medical Chronicle, May, p. 96.)

STYRONE as an Antiseptic.

Dr. Beach, of the Massachusetts General Hospital, says that, having studied the action of styrone (prepared from liquid storax and balsam of Peru) for eleven years, he can confirm the statement he then made as to its antiseptic properties (*Boston Medical and Surgical Journal*, Aug. 1st). It possesses the advantages of being (1) efficient, (2) non-poisonous, and (3) agreeable in odour. It may be used as a deodorant for ulcerating cancers in the form of a spray (styrone, 1 dr.; glycerine, 1 oz.; and water, 1 oz.), or applied to raw surfaces in the form of an emulsion, with olive oil, water, or vaseline. From experiments made by Dr. E. K. Dunham, Bacteriologist to the Massachusetts Board of Health, it is shown that the germicidal powers of styrone are considerable, as the development of such organisms as putrefactive bacteria, cholera bacilli, streptococcus pyogenes, and staphylococcus pyogenes aureus, was checked by certain proportions of styrone. (Lancet, Sept. 14, p. 555.)

TRAUMATIC & PERNICIOUS ANÆMIA.—Characters of Urine.

It is important to be able to distinguish between profound anæmia of traumatic origin and pernicious anæmia; and this I find it is possible most easily to do, by having regard to the character of the urine in the two cases. I find that the urine of pernicious anæmia contains large quantities of pathological urobilin, recognisable both chemically and on spectroscopic examination, and that its colour is correspondingly high. In marked cases, or during periodic exacerbation of the destructive process within the blood, this character of the urine is a very striking one; more especially as it is unaccompanied by any diminution in the quantity, is frequently quite independent of the occurrence of fever, and the specific gravity is usually very low (1010 to 1015). The urine of traumatic anæmia, on the contrary, is exceedingly pale in colour, and is free from pathological urobilin. If in addition we note the condition of the blood in the two forms of anæmia, with special reference to the relation between the richness in hæmoglobin and the corpuscular richness—in traumatic anæmia the percentage diminution in hæmoglobin being usually considerably in excess of the diminution in the number of corpuscles; whereas in pernicious anæmia the hæmoglobin percentage is always relatively high, I believe we shall be able in future to draw a sharper line of distinction between these two forms of anæmia than has hitherto been possible. (Dr. Wm. Hunter, p. 164.)

TURPENTINE.—A New Eruption from.—(*Brit. Jour. Dermatology.*)

Dr. Ernst Feiber, of Aix-la-Chapelle, furnishes an excellent clinical example of the very rare and unique condition of an œdematous and papular erythema following the internal administration of a turpentine preparation. The patient was under treatment for subacute gonorrhœa, and was taking 0·6 grammes of the essence of

turpentine twice daily. On the ninth day of the treatment, that is, after the use of 10·8 grammes of the turpentine preparation, the patient complained of severe pruritus. On the following day an erythema, consisting of small acutely pointed papules of a bright red colour, some of which were excoriated by scratching, was found to cover all the surface of the body excepting the head and face, being more pronounced on the lower than on the upper limbs, and specially intensified on the abdomen and buttocks. The pruritus and rash disappeared in three days on the cessation of the turpentine preparation. Being desirous of ascertaining if the turpentine would again produce the erythema, Dr. Feiber again prescribed it. On the fourth day violent itching returned, accompanied by an eruption of similar papules; but in addition to these there were noticed on the abdomen and buttocks small red slightly raised spots, with patches about the size of a florin of the same bright red colour, both in their centres and in their peripheries. The urine was normal, and the patient felt well. Dr. Feiber remarks that whereas the first eruption was exclusively a pure papular erythema—roseola, the second, on the contrary, was a mixed form of œdematous and papular erythema, an eruption described now, as far as he knows, for the first time as consequent on the administration of turpentine. (Practitioner, Sept.)

TYPHOID FEVER.—Occurrence of Laryngeal Perichondritis. There can be no doubt that laryngeal complications in enteric fever are more frequently met with on the Continent than in this country. For instance, Lüning, of Zurich. states that out of 1,745 post-mortem examinations in enteric fever, laryngeal complications were found in 17 per cent. In 115 post-mortem examinations of typhoid laryngeal complications, which led to stenosis of the larynx, perichondritis with necrosis was found in 59, and in 9 other cases the ulceration extended down to the cartilage, or there was perichondrial abscess without necrosis. Ziemssen is in favour of the decubital origin of the typhoid perichondritis, and this view is supported by the record of eight cases at Tiflis. In these the perichondritis came on five to ten weeks after the commencement of enteric fever, and in all without pain. This certainly looks like a condition brought about by defective nutrition rather than by any specific inflammatory process. Sestier also regards the perichondritis as being due to the tendency to abscess, gangrene, and necrosis, caused by the profound debility of the convalescents from typhoid. In none of the twelve cases collected by Sestier was there ulceration at any other part of the larynx, and the same holds good in three cases related by Eve, and there is evidence for believing that in some cases, at all events, the inflammation originates in the perichondrium, and is not the result of extension of typhoid ulceration down to the cartilages. Moreover, as Eve points out, necroses of the cartilages, similar to those occurring in typhoid, are found during convalescence from variola and in glanders, thus

indicating that necrosis of the larynx may be regarded as one of the sequelæ of exhausting zymotic diseases, and not a specific result. Koch, on the other hand, asserts that ulceration of the larynx is a true laryngo-typhoid state, which always coincides with the acute period of the general disease; and he is of opinion that, when in the stage of convalescence from typhoid, symgtoms of laryngeal stenosis come on, they are the result of a perichondritis, and are such as usually occur in the acute illnesses of long duration. A curious feature in the perichondritis of typhoid is the absence of symptoms; this is favoured by the stupor of the patient. Even when some amount of stenosis is present, the patient has but slight characteristic marks, and as drowsiness may mask the dyspnœa, especial attention must be paid to cyanosis. (Dr. F. de Havilland Hall, British Medical Journal, Sept. 14, p. 300.)

UNILATERAL INCOMPLETE GRAVES'S DISEASE following on an Intra-Nasal Operation.

At the Clinical Society on April 12, 1889, Dr. Felix Semon read a communication on a case of Unilateral Incomplete Graves' Disease after removal of Nasal Polypi, and exhibited the patient. In the introductory part of this paper three cases recently observed by Dr. Hopmann of Cologne, the late Professor Hack of Freiburg, and Professor B. Fränkel of Berlin were referred to, in which intra-nasal operations undertaken for the relief of nasal obstruction had very unexpectedly led to the diminution, or even disappearance, of the symptoms of Graves' disease, from which the patients in question had concomitantly suffered. Mr. George Stoker of London, too, had recorded two cases in which intra-nasal operations had caused diminution or disappearance of goitres, though in his cases no other symptoms of Graves' disease had been present. That in these cases the changes in the domain of the sympathetic were actually due to the intra-nasal operations, and not mere coincidences, appeared from the fact that the disappearance or diminution of the exophthalmos and of the enlargement of the thyroid body in all these cases corresponded to the side operated upon. Dr. Semon now regretted having to bring forward a case illustrating the hitherto, it was believed, undescribed possibility that the changes occasionally brought about by intra-nasal operations in the domain of the sympathetic might be other than favourable ones. In his case operations undertaken by means of the galvano-caustic loop for the removal of multiple recurrent mucous polypi of the nose had suddenly caused exophthalmos of the patient's right eye, occurring within a day or two of the operations. The presence of Graefe's symptom (lagging behind of the upper eyelid when the patient looked down) and of Stellwag's symptom (retraction of the upper eyelid) plainly showed that the exophthalmos was of the nature of Graves' or Basedow's disease, which diagnosis had been corroborated by Mr. Nettleship, but there

was neither enlargement of the thyroid gland nor increased frequency of the pulse-rate. Not the least remarkable fact in connexion with this case was that whilst the intra-nasal operations had produced one neurotic symptom (viz., the exophthalmos), they had cured the patient of another (namely, asthma, from which he had begun to suffer shortly after the appearance of the nasal polypi.) Why the right eye alone should have become affected Dr. Semon did not profess to explain. He discussed, in conclusion, the various hypotheses by which the occurrence of the exophthalmos might be explained (reflex dilatation of the vessels of the orbit with turgescence of the retro-bulbar fatty tissue, tonic contraction of the orbital muscle, due to reflex irritation from the nose, &c.), without, however, expressing himself in favour of any. In conclusion, he asked if in such a case further interference—which was in the present instance urgently demanded by the patient, whose work was seriously interfered with by the polypi, which had grown again—was justifiable or not. (Lancet, April 20, p. 789.)

AFFECTIONS OF THE NERVOUS SYSTEM.

DELIRIUM AND INSOMNIA.—Use of Paraldehyde in.

Certainly in delirium the action of paraldehyde is excellent, and I am told that in acute alcoholism it is safe and sure. Morphine, chloral, and potassium bromide all have great limitations, especially when one needs them most ; and for those cases, where there is *no* pain, paraldehyde is harmless and most useful. I generally gave for an adult ℥ ss in an ounce of aq. menthæ piperitæ, to be taken at 8 or 9 p.m. and again at 12, and at 3 a.m. if needful. The second dose was hardly ever required in a series of cases under my care, the third never. (E. Mansel Sympson, M.B., Lincoln, Practitioner, July, p. 13.)

DELIRIUM following a Dose of Sulphonal.

Few hypnotics so quickly gained professional favour as sulphonal. Until the present I have had nothing to say of its effects but such as were favourable. In enteric fever, bronchitis, delirium tremens, the insomnia of over mental activity, and so forth, I have used it with marked benefit and found the sleep it produced refreshing, and that it had none of the unpleasant after-effects of opium or chloral, consequently I prescribed it freely. In July of this year I prescribed twenty-five grains to a young woman, aged nineteen, who was suffering from menorrhagia. The dose was given in a state of fine powder at 9 p.m., the girl's usual bed hour being 10 o'clock. After undressing and lying down instead of feeling sleepy she complained of hearing persons talking to her, and she soon became delirious, holding imaginary conversations with absent friends and strangers. This condition continued until 7 a.m. the next morning when she

became drowsy, and fell into a dose, being stupid and lethargic until 10 a.m., at which hour her pulse was fairly good (86) and her pupils were normal, as was her temperature; her skin was pallid, as were her lips, but there was no evidence of cyanosis. As a rule sulphonal is unsuited for the insomnia which results from pain, cardiac lesions, angina pectoris and arterio-sclerosis. Every drug capable of producing well-marked physiological effects will be found unsuited for certain cases, and it is an unfortunate fact that nothing but practical experience will enable the profession to decide on the cases which are suitable and otherwise. We are prone when a new drug is introduced to prescribe it very freely, especially when its presence is hailed as a great boon, as was sulphonal, and we occasionally forget that the well-marked therapeutic action which makes it so valuable will also increase the risk to life if it is prescribed improperly; and every imprudent use of the remedy runs the risk of causing its rejection, and the consequent loss to the profession of a valuable therapeutic agent. (Mr. George Foy, Surgeon to the Whitworth Hospital, Dublin, Medical Press, Sept. 11, p. 253.)

LOCOMOTOR ATAXIA.—The Treatment by Suspension.

Convinced that the spinal cord can only be stretched by force being applied to the neck and head, I dispense with the arm supports altogether and hang the patient up entirely by the chin and occiput. The rings attached to the straps by which these parts are supported are passed through the hook of a spring balance, so that when traction is made I know just how many pounds are applied. In the beginning of the treatment I do not raise the patient entirely from his feet, but exert a tractive power of from seventy-five to one hundred pounds, as the case may be. From day to day this is increased, until at last the whole weight of the body draws upon the spring balance. I should not hesitate if the body was of light weight to attach weights to the feet or fasten them to the floor. It has been clearly shown that by this modified method, as I have employed it, improvement is much more rapid than when a portion of the weight is taken off by the arms. A body supported wholly or in part by the arms causes no stretching whatever of the spinal cord. A man might hang from his elbows or his armpits or his hands indefinitely, without the cord being affected in the slightest degree. I have one patient now in my sanitarium who has been subject to locomotor ataxia for several years, who has been under treatment for about six weeks, and who is now free from any symptom of the disease whatever, except contracted pupils, absence of the patella-tendon reflex, and a slight degree of incontinence of urine. This latter symptom is gradually disappearing. He is now being suspended from the chin and occiput for ten minutes daily, and his weight is one hundred and thirty-eight pounds. (Dr. Wm. A. Hammond, Washington, N. Y. Med. Journal, May 11, p. 512.)

LOCOMOTOR ATAXY.—Treatment by Suspension.—Results.

At a meeting of the *Berliner Gesellschaft für Psychiatrie und Nervenkrankheiten*, on May 13th, Dr. Bernhardt communicated the results of the suspension treatment which he had carried out in nineteen cases of locomotor ataxy. These patients had been subjected to 209 suspensions in all; in none of them had Dr. Bernhardt seen any ill effects produced by the treatment. He began by suspending the patients for half a minute every other day, and rose by degrees to three minutes. The effects which he had observed were: 1, diminution and occasional total cessation of the "lightning" pains; 2, the patients stated that they could walk better and longer, but Dr. Bernhardt himself never saw any change in the ataxic symptoms; 3, power over the bladder was recovered, so that the patients could hold their water and sleep the whole night through; 4, sexual power was restored. In a few patients there was no objective improvement, but all declared that they felt better. The good effect, however, was in almost every case merely temporary. Dr. Bernhardt had not seen any effect on the optic nerve from suspension. He pointed out that the treatment was not curative, but only palliative as regards certain symptoms. Dr. Eulenburg, with an experience twice as large as that of Dr. Bernhardt, confirmed his statements in every particular. The improvement showed itself in restoration of sleep and general well-being, in Romberg's symptom, the walk, the functions of the bladder, the neuralgic and "lightning" pains, the headache and the gastric crises. In some cases the amelioration which manifested itself at first ceased on further continuation of the treatment; in others, when the suspensions were discontinued, the symptoms became worse, but improved again when the treatment was resumed. Several other speakers expressed themselves to the same effect. Dr. Remak called attention to the danger of the suspension treatment in cases of heart-disease. (British Medical Journal, June 15, p. 1376.)

NEURALGIA.—Phenacetin in the Treatment of.

According to Dr. Ott (*Zeitschrift für Therapie*, May 15, 1889), phenacetin, in doses of from $7\frac{1}{2}$ to 75 grains daily, possesses most marked value, according to his experience, in the treatment of neuralgia of peripheral origin; while it is without action in treatment of neuralgia dependent upon disease of the brain or spinal cord. Dr. Ott administers the remedy in the form of a powder enclosed in capsules, in doses of $7\frac{1}{2}$ grains, and has never had occasion to use larger amounts. One or two of these powders, given at intervals of an hour, are found to succeed easily in arresting suffering. His most brilliant results are stated to have been obtained through the use of phenacetin in hemicrania, and in occipital neuralgia, which so frequently occurs in women during the menstrual period, or in men as consequence of marked hemorrhoidal congestion. In one case of

hemicrania he had marked success even after the patient had before taken antifebrin without avail. In pure trigeminal neuralgia it only produces transient relief, so that final resort must be had to other remedies, such as quinine, salicyl, or electricity. He reports two cases of cardialgia in which there was marked relief, as well as three cases of intercostal neuralgia. On the other hand, it produced no effect in an extremely severe case of sciatica, even though the dose was increased to 75 grains in twenty-four hours. Unfortunately, the economy appears to get accustomed to the use of phenacetin, and, after continued employment, its analgesic properties are lost. (Therapeutic Gazette, July, p. 482.)

PARALDEHYDE AND SULPHONAL COMPARED.

The practical deductions that my experience with these two drugs would suggest are: 1. That paraldehyde is the safer hypnotic where a continuous action is desired. 2. That paraldehyde has a wider range of application in mental disease than sulphonal, and that in the insomnia of acute or chronic disease, where pain, cough, dyspnœa, or fever exist, sulphonal is less effectual than paraldehyde. 3. That in all depressed mental states sulphonal acts ineffectively, and acute melancholia should be a contra-indication to its use, while in maniacal conditions it is more satisfactory than paraldehyde. That the use of the former in general paralysis of the insane should be carefully considered, while in acute melancholia the latter is usually effective. 4. That a high degree of physical debility with insomnia should contra-indicate sulphonal. 5. That in 18 per cent. of cases various degrees of sulphonal intoxication appear, and that it would seem that the drug is capable of being dangerous to life, and that, therefore, the commencing doses should be small, some persons being extremely sensitive to its influence. 6. That the effects produced by sulphonal are not always in proportion to the dose administered, and that in some cases at least it very seriously interferes with the normal bodily secretions, while paraldehyde does so to a very much less extent. (Dr. C. M. Hay, American Journal of Medical Science, July, p. 42.)

PARALDEHYDE IN MENTAL DISEASES.—The Proper Dose.

The proper dose of paraldehyde varies enormously according to the case. Generally, I begin with forty minims or a drachm, and go up to two drachms in ordinary cases. In very many cases of confirmed insomnia in melancholia and in acute mania, I have given three or even four drachms, and in one case six drachms. I have now a general paralytic who has taken four drachms every night for a fortnight. A lesser dose did not cause sleep. Here we commonly give it mixed with tincture of quillaya and a few drops of chloral ether in cinnamon water. Its bad taste cannot be got over, and patients always smell of it for twenty-four hours after the last dose. I have never seen paraldehyde affect the heart's action

in any way except to strengthen it shortly after being given. I look on its action as being in some respects half-way between that of ether and alcohol, but with a far more decided hypnotic effect than either. I have had many cases in which its nightly use for periods of from one week to six has been followed at once, on its being stopped, by a restoration of the sleep-habit. (Dr. T. S. Clouston, p. 153.)

SCIATICA.—The Use of Rest and Ice-bags in Severe Cases. In the course of a discussion on the treatment of Sciatica at the Philadelphia Neurological Society on Feb. 25, 1889, Dr. Weir Mitchell said, "He would like again and again to repeat that in severe cases rest is an imperative need. By this he did not mean merely remaining in bed, but the use of methods which may or may not be altogether his own (that is a matter of indifference), but which he had never seen elsewhere described, and which are now often used in the Infirmary by himself and his colleagues. These consist in placing the patient who has this neuralgia in bed and putting on him an old-fashioned thigh-fracture splint, insisting upon its being worn night and day, so that it is impossible for him to bend his leg. The result of this absolute rest is, in many cases, quite remarkable. Nor does this means forbid the use of other agencies, notably the cautery, or low temperature, or of other measures which may be allowable. Another measure which he did not know to have been used by any one than himself is the *persistent* application of ice along the nerve track. This consists in applying ice-bags along the whole track of the main nerve *in connection with the splint;* that is to say, these bags are applied from the sciatic notch to below the knee. They are kept on day and night. In one case they were used as long as three weeks, with triumphant results. (Medical News, April 6, p. 386.)

TRIGEMINAL NEURALGIA.—Use of Butyl-Chloral in. Liebreich (*Thereap. Monats.*, Nov., 1888) says he is convinced that butyl-chloral in doses of 15 to 45 grains causes anæsthesia in the course of the trigeminal nerve. Unfortunately the effect is not continuous, and large doses cause sleep. It is very useful, however, in affections of the trigeminal, which are not chronic in character. Rheumatic pains in the face, and those occasioned by injury or toothache, due to inflammation of the pulp or periostitis, can be relieved by the administration of buty-chloral. When the filling of a tooth gives rise at first to a feeling of pressure, butyl-choral gives satisfactory relief. The taste is unpleasant, and the drug is soluble with difficulty. It may be given as follows:—℞. Butyl-chloral, gr. 30 to 45; spir. vin. rect., ♏. 150; glycerini, dr. 5; aquæ, oz. 3 dr. 6. M. Three or four teaspoonfuls for a dose. The dose must be graduated according to the pain and the special conditions of the patient. (Medical Chronicle, Sept., p. 484.)

AFFECTIONS OF THE CIRCULATORY SYSTEM.

AORTIC INCOMPETENCE.—Use of Digitalis in.

It has been long a disputed point whether digitalis is contraindicated in cases of aortic incompetence or not. The chief reason assigned for the rejection of its use is the prolongation of the diastole which the drug is known to induce. Considering the question from the practical standpoint, I unhesitatingly affirm my belief, as the result of my clinical experience, that aortic incompetence offers no contra-indication to treatment by digitalis. The great indication for its employment is a failing heart-muscle. One frequently meets with cases of aortic incompetence in which the lesion is a most pronounced one, and accompanied by a copious backward current, and yet there is no venous stasis and no dropsy, and not even evidence of pulmonary congestion. In other words, the left ventricle is able to do the extra work imposed upon it, and the effects of the lesion do not travel behind this chamber. In such cases I have never found digitalis useful. The changes which are necessary for compensation entail discomfort, if not worse, upon the patient, whose chief troubles are palpitation and a certain amount of dyspnœa on exertion. More often, however, we have aortic incompetence putting on a very different aspect—that due to a failing heart-muscle. We find the left ventricle much dilated, the mitral valves incompetent, the lungs engorged, the right side of the heart dilated, the liver enlarged, general venous stasis, and dropsy. This is the type of case in which we may expect the best results from digitalis, provided the cardiac muscle has not become so much degenerated as to render its response to the drug impossible. (Dr. Graham Steell, Practitioner, September, p. 186.)

HEMORRHOIDS.—Treatment by Chrysarobin.

Dr. Kosobudski, writing in the *Russkaya Meditsina* on Unna's plan of treating hemorrhoids with chrysarobin, says that he has employed it—or a modification of it—in twenty-two cases, and has found it on the whole very satisfactory. He does not, however, employ quite such strong preparations as Unna. His plan is to wash the hemorrhoid with a weak carbolic or creolin lotion and then to dry it well with cotton wool, after which he applies three or four times a day an ointment consisting of chrysarobin 8 parts, iodoform 3 parts, extract of belladonna 6 parts, and vaseline 150 parts. For internal piles suppositories are employed, which are composed as follows: Chrysarobin, 1 gr.; iodoform, $\frac{1}{4}$ gr.; extract of belladonna, $\frac{1}{8}$ gr.; cacao butter, 30 gr.; glycerine sufficient to enable the mass to be made into the form of a suppository. If there is much hemorrhage a tannin suppository must be used. After three or four days of this treatment the pain and hemorrhage disappear, and after three months or so the hemorrhoids are found to have almost completely shrivelled up. (Lancet, Oct. 19, p. 811.)

NON-TUBERCULAR HÆMOPTYSIS of Elderly Life.

Sir Andrew Clark concludes an address on this subject with the following proposals :—(1.) That there occurs in elderly persons free from all disease of the heart and lungs a form of hemorrhage arising out of minute structural alterations of the terminal blood-vessels of the lungs. (2.) That these vascular alterations occur in persons of the arthritic diathesis resembling the vascular alterations found in osteo-arthritic articulations, and are themselves probably of an arthritic nature. (3.) That although sometimes reaching to a fatal issue, it usually subsides without the supervention of any coarse anatomical lesion of either heart or lungs. (4.) That it is aggravated or maintained by the administration of astringents, and by indulgence in liquids to gratify the thirst caused by them. (5.) That the best treatment is diet and quiet, cutting off the supply of liquids, quieting the cough, calomel and salines, alkalies and iodide of potassium, and in free counter-irritation. (Medical Press and Circular, Oct. 23, p. 402.)

PERICARDITIS.—A New Symptom of.

In some cases the diagnosis of effusion into the pericardium is difficult ; and a symptom, first noticed by Bamberger, is said to be constantly present, and to aid materially in arriving at a correct conclusion. Puis, in the *Wiener Medicinische Wochenschrift*, early in this year, has again attracted attention to the point. By percussion of the patient in a sitting position, or when lying on the right side, there is a muffled tympanitic resonance or diminished resonance over the left side of the thorax behind, extending downwards from the angle of the scapula; and at the place of greatest loss of resonance there is distinct bronchial breathing and bronchophony, with increased vocal fremitus. If the patient is made to bend forward, a portion of the dulness completely disappears, another portion becomes tympanitic, and no bronchial breathing is heard. This change is more marked still if the patient assumes the knee-elbow position. The physical signs observed are ascribed to compression of the lower lobe of the left lung by the fluid in the pericardium, and is found chiefly in young adults with chests which are elongated or narrowed antero-posteriorly. The presence of pneumonia or pleuritis is contra-indicated by the alteration of the physical signs when the position of the patient is changed. (British Medical Journal, July 6, p. 29.)

VARICOSE VEINS.—The Causes of.

A careful consideration of the cases tabulated and many others seen in hospital and private practice, in addition to dissections, into the details of which I need not enter now seems to me to render the following conclusions reasonable. 1. That discounting the influence of pregnancy, the tendency to the development of varicose veins in the lower limbs is greater in men than in women. 2. That the

disease for the most part arises from congenital and often hereditary defect or other abnormality in the venous apparatus, there being no evidence to show that a vein originally perfect (excepting perhaps the long saphena) ever becomes varicose before middle age, in the absence of such obvious causes as those previously referred to. 3. That two distinct classes of the disease exist; one beginning in the deep veins, and subsequently involving the superficial; the other affecting the superficial veins only, usually the long saphena and its radicles, and being confined almost entirely to tall subjects. 4. That the large mass of varicose veins in the lower part of the thigh, often associated with a globular varix at the saphenous opening, may in many cases, although apparently connected with the long saphena, be independent of it, being fed for the most part by veins coming through the fascia from the deeper parts of the limb, a point worthy of consideration in the treatment of these cases. (Mr. W. H. Bennett, p. 270.)

[For Mr. Bennett's paper on the Radical Treatment of Varicose Veins, see p. 271 of this volume of the *Retrospect.*]

VARIX (DEEP-SEATED).—Characters of the Pain in Cases of. The pain occurring in commencing varicosity of the deep veins before any perceptible change has taken place in the superficial vessels is peculiar in its nature and behaviour; it is pathognomonic, I believe, of incipient varicosity, but I can find no reference to it in this relation in the ordinary works on surgery. Although I cannot say that it is to be met with in all cases, in many it certainly occurs, its real cause being often undetected, and the patients treated, as a rule, for gout, rheumatism, or valgus. The pain under discussion commences in one or both legs almost directly after the patient rises in the morning, or at any other time upon assuming the erect position after the recumbent posture has been maintained for a considerable period; it is very acute and rather "crampy" in character; the limb is neither stiff nor markedly tender. After an hour or so the acute discomfort subsides, the "crampy" pain disappearing first, leaving the patient apparently well till later in the day, when in the more advanced cases aching pain follows, with or without œdema. It is, I think, evident that this particular pain is quite distinct from that which is usually described as produced by varicose veins, both in the manner of its onset and in its general character; indeed, I have heard it stated by a surgeon of repute that the very peculiarities of the pain negative the possibility of its being due to varicosity. The explanation is, however, it seems to me, simple, if the difference in the condition of the veins at the commencement of the change towards varix, and in advanced cases of the disease, be considered. In the incipient stage of the affection the veins are to some extent resilient, their coats perhaps being at the same time rather hypertrophied, especially in the muscular

layer. In the advanced disease, the veins, pouched and tortuous, are insensitive, flabby, or rigid tubes, without resilience at all. The results of these conditions are the following. In the incipient cases, the veins, when subjected to more than the normal pressure, immediately resist the unnatural tension, being assisted in this by the contractions excited in the fibres of the muscles around them—at all events, in the case of the intra-muscular veins. Thus is produced the acute, somewhat crampy pain which under these circumstances naturally occurs at the time of rapid increase in the blood-pressure in the veins, which, by reason of their resiliency recover something like their previous calibres during the time the abnormal tension is relieved by the recumbent position of the patient. The peculiar subsidence of this pain is accounted for, in my judgment, by the active resistance in the vessel being gradually overcome by the continual, uniform, increased blood-pressure, so that no noticeable further discomfort occurs until the distension is sufficient to cause the ordinary pain with or without œdema met with in advanced varicosity. The daily repetition of these conditions results in the gradual advance of the disease, the typical morning pain ultimately entirely disappearing, either in consequence of the veins becoming over-dilated and insensitive, or, as more commonly happens, from the extension of the disease, in the directions previously indicated, to the superficial veins, which, being independent of muscular or other extraneous support, dilate rapidly, and so afford a speedy relief to the tension in the deeper parts of the limb. Varicosity of the superficial veins occurring without general enlargement of the limb or antecedent pain is probably due either to the disease commencing in these vessels themselves, or to their implication sufficiently early to prevent, by the comparative ease and rapidity with which they yield to pressure, any considerable tension in the subjacent parts. (Mr. W. H. Bennett, Lancet, June 8, p. 1123.)

AFFECTIONS OF THE RESPIRATORY SYSTEM.

GRANULAR PHARYNGITIS.—Statistics and Treatment.

In Section of Laryngology of the British Medical Association, Mr. L. A. Lawrence read a paper based on 200 cases, mostly in hospital patients, which he had lately examined. No selection was made, the patients being for the most part warded for ordinary surgical and medical complaints. As regards the throat, it was to be presumed that the condition of these parts fairly well represented what might be noticed in the same classes in ordinary health. A "granule" was defined as an elevation in the surface of the mucous membrane varying from the size of a small pin's head to that of a split pea or bean. Any hereditary diathesis, and notably struma, rheumatism, and gout, was said to predispose to the affection, the

vagueness of the etiology being a proof of their ignorance on the subject. In the 200 cases examined, there were 168 examples of granular pharyngitis; 30 patients were free from it, and in 2 young children the posterior wall of the pharynx could not be seen on account of the large size of the tonsils. Of the 168, in 48, or 28·57 per cent., there was personal or family history (sometimes both) of phthisis or struma: in 34, or 20·23 per cent., there was a history of struma or gout; in 20 there was a history of miscellaneous symptoms, or conditions such as cough, heart disease, asthma, and dropsy; and in the remaining 66, or 39·28 per cent., there was a clean bill of health, both personal and hereditary. Of the 30 in whom no granules were seen, 9, or 30 per cent., gave a history of phthisis or struma; 4, or 13 per cent., of rheumatism; 3 gave other histories, and the remaining 14 were healthy. With respect to the alleged influence of phthisis, the healthy cases exhibited 30 per cent., the unhealthy 28·57 per cent. Phthisis might, therefore, be excluded as a factor. As regards rheumatism, the numbers were 13·33 per cent. of healthy, against 20·23 per cent. of unhealthy, showing an excess of the latter of only 7·9 per cent. The part played by rheumatism might, therefore, be practically ignored. Employment did not seem to have anything particular to do with the causation of granules. In those who used the voice to excess, though the granules might be a cause of alteration in the voice, it was not clear that the use of the voice was the cause of the granules. With regard to age, the numbers in each decade were 26, 38, 40, 26, 20, 5, 7, with granules, as against 8, 5, 3, 7, 3, 2, 2, without. Thus the earlier years up to 50 showed a marked preponderance, while after that age there was a sudden fall. The disease seemed to be common to all climates; this was certainly the case as regards Europe. Eighty-two men and 86 women out of 100 of each had the complaint, showing that the different occupations of the sexes—the exposure of men and the delicacy of women—had no influence for evil. In particular, tobacco as a factor was excluded by these figures. Diathesis, age, occupation, &c., having been excluded, the author suggested contagion as a possible cause. There was the analogy of granular lids, the granules being precisely similar in structure. In most cases the patient was not aware of the existence of the granules, but in 21 of the 200 cases symptoms were present, such as a feeling of dryness and stiffness in the throat, and occasionally a tickling sensation causing cough and even hoarseness. These might become aggravated so as to become seriously troublesome. The number of granules seemed to have some effect in the production of symptoms, as out of the 21 cases referred to, 13 had many and 5 had a few granules, whilst 3 had none. The granules might be situated in any part of the pharynx, might extend upwards to the naso-pharynx or down towards the œsophagus; they might also be present in the palate and tonsils. The smaller varieties were by far the commonest,

only 31 in 168 cases being of the larger sort. In 57 cases there were few—in some only one or two—granules, whilst double that number had many. Microscopically the granules showed simply lymphoid tissue. In the vast majority of cases no treatment was necessary. When symptoms were present they could be alleviated, but Mr. Lawrence did not think that a permanent cure could in the present state of knowledge be effected. Astringents were said to be useful, preference being given to chloride of zinc (gr. xxx, ad. ℥ j), applied as a paint, twice daily. "London paste" had also been used satisfactorily. An objection to the galvano-cautery was that hyperæmia at the injured site caused increased nutrition in the neighbourhood, and then sometimes induced increased growth of the granules near. Mr. Butlin had lately used a form of Meyer's ring knife bent at a suitable angle for scraping the granules from the pharynx. The general health should be attended to in combination with the local treatment. (British Med. Journal, Sept. 14, p. 595.)

HAY ASTHMA.—Treatment by Galvano-Cautery.

The method of treatment which has been more largely employed in America than in this country is the one which commends itself to my judgment, as being at the same time based on scientific principles, and being also free from risk, and attended with but comparatively little pain. I allude to the employment of the galvano-cautery. The mucous membrane of the nose must first be rendered anæsthetic by the application of a 20 per cent. solution of the hydrochlorate of cocaine, and then the thickened tissue of the inferior or middle turbinated body, as the case may be, is to be freely and deeply scored with the galvano-caustic blade. In some cases I find it is better to use a fine point, as the deeper parts can be more thoroughly cauterised with this than with the blade. The smarting after the cauterisation may be diminished by introducing into the nostrils wool smeared with carbolised vaseline. Even a single application will sometimes effect a great change for the better, but usually several sittings are required before complete success is attained. As regards the use of a solution of cocaine applied to the nose, the expectations which were formed of its efficacy in hay fever when the drug was first introduced have not been realised. Though the immediate result of the application is to produce an alleviation of the more distressing symptoms of the disease, the effect soon passes off, and the application has to be renewed if relief is to be obtained. As a result of the dilatation of the blood-vessels, which is the secondary effect of cocaine, the mucous membrane increases in thickness, so that eventually the drug aggravates the evil it was meant to cure. Moreover, its seductive effect should not be forgotten, nor the risk of starting the cocaine habit ignored, so that I would join with Mr. Lennox Browne in deprecating the employment of cocaine in chronic diseases of the throat and nose. (Dr. De Havilland Hall, p. 171.)

IDIOPATHIC CROUP.—Use of Oil of Turpentine in.

Lewentaner (*Centralbl f. Klin. Med.*, No. 8, 1889) formerly reported his success with oil of turpentine in the treatment of croup, but there might possibly be a question raised about the correctness of his diagnosis, since no membrane was found expectorated. He now reports two other cases, both of them *in extremis* when the treatment was commenced, and both of which were saved, apparently by the use of turpentine. The first case was a child of two years, who had exhibited signs of stenosis for several days, and who had reached about the seventh day of the disease. When first seen by the author the asphyxia was extreme, the cough entirely aphonic, the face pale and livid, and the pulse scarcely perceptible. No membrane had heen expectorated. A teaspoonful of oil of turpentine was administered, and ice-compresses put around the throat. The child slept more quietly through the night, received another dose of turpentine on the next morning, and during the day expectorated a portion of membrane of considerable size. Under continued administration of turpentine in smaller doses, improvement steadily progressed. The second case was that of a child of four years, who had been attacked suddenly with symptoms of stenosis, and was in the eighth day of his illness when seen by the author. He then exhibited extreme dyspnœa, with pale skin, and filiform and scarcely perceptible pulse. There had been no membrane expectorated. A teaspoonful of oil of turpentine was given, and the continuous atomization of a mixture containing turpentine prescribed. Very soon after the ingestion of the drug there was a violent paroxysm of coughing, and a large piece of membrane three or four inches long was expectorated. As it, however, continued to form, the treatment was persisted in, a teaspoonful of the medicine being given twice a day. Membrane was coughed up in abundance, and in a few days the child was well. The author was fully convinced that turpentine has a specific action on the disease.—(American Journal of Med. Science, June 1889, p. 614.)

LARYNGEAL TUBERCULOSIS.—Use of Menthol in.

Dr. Osendovski has found menthol, applied locally as well as taken internally, of great value in several cases of tuberculosis, where the inter-arytenoid region was affected, as well as where the vocal cords were ulcerated. Solutions of the strength of from 10 to 30 per cent. were applied by means of a Heryng's brush, and in two instances inhalations of menthol and magnesia were ordered. Except in one case where there was perichondritis, this treatment was followed by the diminution of the inflammation and pain and a cleaner appearance of the ulcers, but not by actual healing. When there is also pulmonary tubercolosis, Dr. Osendovski finds that it is advantageous to combine internal medication with menthol along with the local applications, which, by the way, must be

persisted in for some weeks. The best strength to begin with for the local applications is 10 per cent.; this may be gradually increased to 30 per cent., but solutions of greater strength than this usually cause a good deal of irritation. (Lancet, July 6, p. 31.)

NIGHT SWEATING.—Agaric Acid, a New Drug for.

Some years ago a substance derived from the well-known *Agaricus albus* was introduced as a sweat-checking agent in phthisis. It was looked upon as an alkaloidal body, and received the name of agaricine. This, however, has now been found to be an impure substance, and Professor Schmiedeberg has recently extracted from it a triatomic dibasic acid, to which the name of agaric acid has been applied. This is a white silky crystalline substance, scarcely soluble in cold, but readily so in boiling water. Hofmeister has recently investigated its physiological effects, and shown that its action is upon the centres in the medulla, especially the vagus and and vasomotor. It possesses no mydriatic action: on the contrary, instillation of the sodium salt of the acid produces slight narrowing of the pupils, probably from mechanical irritation. The influence of the substance on the secretion of sweat is not a central one; but the result of an action on the secretory structures. Klemperer has tried it very many cases of profuse sweating in Professor Leyden's wards. The dose given was usually $\frac{1}{6}$ gr. in pill, administered in the evening about six o'clock. If the action was insufficient, as many as five pills were given. In most cases the result was very satisfactory, even in those cases where atropine failed, and it was unaccompanied by any unpleasant symptoms. (Practitioner, Sept., p. 215.)

[See also *Retrospect*, vol. xcviii, pp. 31-32.]

Night Sweating.—Use of Sulphonal in.

In addition to the hypnotic properties enjoyed by sulphonal, this drug is capable, according to Dr. Bottrich of Hagen, Westphalia, of exercising a most beneficial influence in night sweats. It acts, he thinks, very similarly to atropine, but, unlike it, is quite free from any undesirable effects. He found this property out by accident, having prescribed a quarter of a gramme (nearly four grains) for an old lady of eighty as a sleeping powder. The patient had been suffering from the most profuse night sweats, obliging her to change her things twice during the same night. After the first dose she asked the doctor whether he had not put something into the powder to prevent the sweats. On making further observations, Dr. Bottrich was able to convince himself that as a rule half a gramme (seven grains and a half) of sulphonal will stop night sweats. Its effects seem fortunately to be somewhat permanent, as even after the drug has been stopped the night sweats are found to be much less severe than they were previously to taking it. (Lancet, April 27, p. 854.)

OZÆNA.—Treatment by Glycerine.

At a recent meeting of the Society of Military Surgeons in Vienna, Dr. Sidlo strongly recommended the treatment of ozæna with glycerine. His method consists in daily washing out the nasal cavity with a two per cent. solution of chloride of potassium, to which ten per cent. of glycerine has been added. This is followed up with the insertion of rolls of cotton soaked in a mixture of one part of glycerine and three parts of water, the tampons being allowed to remain in place for an hour at a time. Using this method, he claims good success in the management of ozæna. The method requires some weeks to effect a cure; but no one who has treated ozæna often will think a few weeks too long to devote to any method which is likely to be successful. The one proposed by Dr. Sidlo is so simple, and apparently so rational, that it certainly seems worthy of further trial, and if other medical men can cure such cases as he has cured in this way, it will be a very useful addition to our therapeutic resources. (Med. Chronicle, Aug., p. 403.)

Ozæna.—Use of Balsam of Peru in.

Prof. Rosenbach (*Deutsche Med. Wochens.*) has found Peruvian balsam an excellent disinfectant in a series of cases which had resisted the usual deodorising agents. It should be applied daily, by means of a brush, to the mucous membrane at the entrance of the nasal cavities and by means of a tampon soaked in the liquid to the deeper portions. (American Journal, May, p. 503.)

PHTHISIS.—Hot-air Inhalation in.

Dr. George C. Sears (*Boston Med. and Surg. Journ.*) records four cases of phthisis in which inhalations of hot air were tried. In the first case he was obliged to discontinue the treatment after a week, owing to salivation and soreness of the mouth; the patient had lost three pounds in weight. In the second case there was marked temporary improvement; but when the treatment was left off, the disease had made progress, and for the first time hæmoptysis had occurred. In the third case there was fairly steady improvement in the general condition of the patient, but without a corresponding improvement in the physical signs; she had, however, begun to improve before the inhalations were commenced, and five days after they were discontinued she died from hæmoptysis. In the fourth case the condition of the patient remained unchanged except that some blood was coughed up. The conclusions, therefore, to be drawn respecting this plan of treatment are decidedly unfavourable. (Practitioner, Sept., p. 211.)

PULMONARY TUBERCULOSIS.—Guaiacol and Creasote in.

Bourget (*Correspondez-Blatt Schweitz Aerzte*, May 15, 1889) says that of all the remedies recommended for the treatment of phthisis, beechwood creasote is the only one which retains its ascendency, although some pessimistic physicians still reject absolutely all

treatment as useless. It is evident that not much is to be attained when creasote is given in doses of only two or three drops a day, but it is otherwise when larger amounts are administered. It is necessary to make the patient take the largest dose possible, without reference to what the Pharmacopœia says on the subject, only seeing that the digestive system is not seriously disturbed thereby. For about three years he has used with very satisfactory results a method of internal and external treatment which he calls the "intensive method," and which consists in saturating the system with creasote without inconveniencing the patient. For the internal treatment he prefers guaiacol dissolved in wine, or, in winter time, in cod-liver oil. (Guaiacol 2 drs.; tinct. quiniæ 6 drs.; vin. Malacc. 40 oz.) The wine is given in tablespoonful doses, each of which contains about one grain of guaiacol. Little by little this is increased to 2—3 tablespoonfuls, until many patients are able to take 15 grains of guaiacol daily. In cases in which there is a disgust for the wine, or it disagrees with the stomach, the author administers the drug by enema, in the form of an emulsion. (Guaiacol 30 gr.; ol. amygd. 5 dr.; acac. pulv. 2½ dr.; cf. emuls. cui add. aquæ 40 oz.; M. Sig., for four enemas.) In winter Dr. Bourget prescribes: Guaiacol 40 gr.; ol. jecoris as. 6 oz. M. Sig. one tablespoonful at every meal. The two forms of administration can sometimes be alternated with advantage, giving the drug by the mouth for twenty-five days, and then by the rectum for an equal time. At the same time the author employs externally a mixture of 20 parts of creasote and 200 parts of cod-liver oil. On retiring, the patient's chest, back, and axillæ are rubbed with this. During the night, and when possible during the day also, an inhaler is worn, in which a few drops of creasote are placed. Gradually the patient is, in this way, saturated with creasote in an amount sufficient to interfere considerably with the evolution of the bacilli. To obtain success the treatment must be continued without intermission for three or four months. (American Journal, and Lancet, Sept. pp. 291, 555.)

PLEGAPHONY.—A New Diagnostic Method.

At the close of a long article on "plegaphony, a new diagnostic method in case of the absence of bronchophony," Sehrwald (*Münch. Med. Wochenschrift*, 1889) draws the following conclusions: 1. In many affections the testing of vocal resonance and bronchophony gives negative results, on account of the weakness of the voice. In such cases the voice can be entirely replaced, so far as concerns bronchophony by the percussion of the larynx with pleximeter and hammer. 2. The percussion of the larynx is conducted to the chest-wall almost exclusively by the air in the bronchial tree, and only to a slight degree by the walls of the air-passages and by the soft parts of the body. 3. Over infiltrated pulmonary tissue the sound scarcely differs from its original character, and possesses three typical peculiarities—it is very loud, clear, and striking; it has a distinctly

tympanitic resonance, and it feels to the ear as a short blow. 4. Over large portions of pulmonary tissue completely destitute of air, there is an extremely well-marked alteration of tone with open and with closed mouth. When the mouth is open the note is not only higher, but also much more tympanitic. 5. Over healthy lung tissue the note is duller, fainter, and especially is of a less distinct quality. It gives no palpation-impulse and has no tympany or alteration of tone. It has, however, an evident and characteristic clicking or jingling resonance. 6. Over an effusion the sound is weakened, or abolished if the percussion is light. If the lung is also without contained air, the sound is not only weakened, but clear and slightly tympanitic; while if air be still present, the weakened note has the characteristics detailed under section 5. 7. Over large cavities the sound is even louder, more striking, and more tympanitic than over infiltrated tissue, while the alteration of tone is more evident, and the palpatory sensation of a blow more pronounced. 8. In pneumo-thorax the sound has a well-marked metallic resonance. 9. The intensity of the sound is greater in the healthy lung on the side of the chest opposite to the side of the larynx which was percussed. It is also greater on deep inspiration, and when the mouth is closed. 10. Owing to the convenient situation of the part percussed, the patient can, when necessary, perform percussion himself. (American Journal of Medical Science, June, p. 615.)

SPASMODIC CROUP.—Its Treatment by Opium.

By the judicious use of an opiate with ipecac, if the case be not so severe as to demand the immediate and somewhat more violent action of an emetic, in my experience the spasm of croup can be better combated than by any other means I have ever tried, and when once a physician and judicious mother have combinedly learned to manage spasmodic croup in this way the disease, except when it occurs in its most violent forms, loses almost all its terrors in a household. What is to be aimed at in croup is to give such an amount of laudanum as will produce a moderate but decided soporific effect without narcosis, and ipecac to relax spasm but not nauseate, and especially not to induce emesis. In administering laudanum to any child that has never previously taken it, no one should ever do otherwise than begin with a minimum dose, and this too at the risk of failing to thoroughly produce an effect, because the event will prove the dose to have been too small for the particular individual. For a child two years old, the initial dose should not be more than two drops of laudanum with ten of ipecac syrup; this to be repeated after an hour, or any time later if necessary. By waiting an hour, a second dose can always, in my experience, be given with entire safety, for if the first has produced no decided effect in that length of time, the second will not produce too much. For an infant of two to six months the first dose, to

keep properly within the line of safety, should be half a drop with five or six of ipecac syrup, this to be repeated in an hour if the first be insufficient. In older children the dose must be proportionately larger, and the precise amount to be given is very much a matter of individual judgment, for it is difficult to formulate a precise rule which can be held to rigidly at the moment of emergency. (Dr. Arthur V. Meigs, p. 172.)

TUBERCULAR PROCESSES.—Treatment by Balsam of Peru.

Landerer (quoted in *Les Nouveaux Remèdes*, 1889) says that in the thorough treatment of tuberculosis, two different methods can be followed: 1, either find a specific (like mercury in syphilis and quinine in malaria), a thing which no one has as yet succeeded in doing; or, 2, imitate nature, and endeavour by an inflammatory process to transform the tuberculous focus into a solid cicatrix. That this method of cure is rare, is due to the fact that tubercle is too poorly supplied with bloodvessels and with material for reparative change to undergo the process of cicatrization. The curative action of inflammation is well seen in the amelioration, or even temporary recovery of lupus after an attack of erysipelas. The author, in seeking to excite an aseptic inflammation by chemical means, has made use of balsam of Peru, which was recommended long ago by Sayre. Tuberculous ulcers, fistulas, etc., heal under the influence of an ointment composed of 1 part of balsam of Peru, 3-5 parts of diachylon ointment, and 1½ parts of wax. Balsam of Peru may also be introduced hypodermatically into peripheral tubercular foci, if it is prepared according to the following formula: Balsam of Peru, mucilage of acacia, āā 15 grains; olive oil, q. s. to make a very fine emulsion; chloride of sodium, 11 grains; distilled water, 3½ ounces. The medicine is, however, not diffusible, and will not in this way reach foci removed from the seat of injection. Tubercular foci in the interior of the body are due to microbic emboli from the seat of the primary lesion. The author has treated fifty-one cases of tuberculosis with the Peru balsam. In the local affection the ethereal solution was applied, or subcutaneous injections used with satisfactory, and sometimes with remarkable results. The best results were obtained in fungous affections of the articulations. There were only four cases of pulmonary tuberculosis in which intra-venous injections were given, and though the treatment was well borne the results were not brilliant. For intra-venous injections the author prepares a fresh emulsion each time, making it slightly alkaline with potash. The injection is always followed by a sensation of lassitude and depression, especially in the evening. He cautions against the use of this method in advanced pulmonary infiltration, as the inflammation which it might provoke would dangerously diminish the air space. (American Journal of Med. Science, May, p. 504.)

WHOOPING-COUGH.—Antipyrin in.

Carl Lowe (*Therap. Monatsh.*, 1889) refers to the almost uniformly favourable action which continues to be ascribed to antipyrin in whooping-cough, and says that in most of his very numerous cases occurring in an epidemic the drug acted well. He reports three cases, however, in which the results were very unpleasant. The first case, a child of fourteen months of age, developed a condition of extreme excitement immediately after taking the first dose. Through its continued crying new paroxysms were continuously produced, combined with vomiting, so that the parents feared immediate death. In the second case, a child of about six months, cyanosis and collapse appeared after the second or third dose. On another occasion the author administered a dose of the drug to the patient, and saw this condition promptly develop. In a third case, a child of two years, the attacks seemed to be made stronger by the medicine, so that in addition to the laryngeal spasm and the vomiting, general convulsions of considerable violence developed. The author believes that the first and third cases indicate that antipyrin often exerts an intensifying action instead of relieving the disease. (American Journal, July, p. 74.)

Whooping-Cough.—Phenacetine in.

Heimann (*Munch. Med. Wochenschr.*, 1889), having failed of success with antipyrine in the treatment of whooping-cough, made trial of phenacetine with excellent results. To a boy of four years he gave four doses of 0·1 gram. each, to a girl of two years three doses of the same size, and to an infant of seven months four doses of 0·05 each. In no case did he observe bad results follow. The effect of 0·1 gram. persisted on the average three hours. To prove that the good results were actually due to the drug, he omitted its administration for a few days, only to find that the frequent attacks returned. (American Journal, July, p. 74.)

AFFECTIONS OF THE DIGESTIVE SYSTEM.

ACUTE INTESTINAL OBSTRUCTION.—The Proper Time for Surgical Interference in.

Dr. B. W. Richardson appends the following summary to a paper read before the Medical Society on Feb. 18, 1889:—1. In all cases of acute intestinal obstruction the use of minor measures, such as purgatives, enemata, galvanic irritation, and massage, are, when judiciously used, correct up to the point of the appearance of one symptom, namely, vomiting of matter of a distinctly fæcal character. 2. So soon as this symptom is established there should be no hesitation in opening the abdomen for the exploration of the obstruction and the attempt at removing it. 3. Obscurity of diagnosis in regard to the seat and nature of the obstruction ought not,

in the presence of this special symptom, to prevent the resort to surgical interference; and for the following plain reasons:—(*a*) That sometimes what is inferred to be a complicated obstruction turns out to be an extremely simple one. (*b*) That if the obstruction be complicated it may admit of being relieved without any further serious danger to the patient than would accrue from omitting the operation, since the greater the difficulty the more urgent is the demand for interference, and the more certain the death if surgical aid be not afforded. (Asclepiad, 1889, No. p. 113.)

ARTIFICIAL HUMAN MILK.

After a prolonged and careful study of this question from the standpoint of practice, we have come to the conclusion that the milk-and-cream food advocated by Dr. Arthur Meigs, of Philadelphia, Dr. Joseph Winters, of New York, and others, is, beyond any comparison, the best artificial food for infants. Its composition for an infant of six months is as follows: Milk, 3 parts; cream, 1 part; lime water, 1 part; boiled water, 2 parts; and sugar of milk, 1 part. Solution of bicarbonate of soda, three grains to the ounce, may be substituted for the lime-water in case the baby is constipated. This food meets the general indication of resemblance to mother's milk in specific gravity, richness in fats, alkalinity, and sweetness. (Dr. Babcock, N.Y. Med. Record, July 13, p. 36.)

[See Dr. Babcock's article on Infantile Diarrhœa and its Treatment at p. 202 of this vol. of the *Retrospect.*]

CANCER OF RECTUM.—Discussion on the Treatment of.

In the discussion on this subject in the Surgical Section, British Medical Association, 1889, Mr. F. Marsh, surgeon to the Queen's Hospital, Birmingham, advocated a preliminary colotomy or colectomy in all cases in which proctectomy was undertaken, and in support of this view he exhibited a patient upon whom he had performed colotomy, after Madelung's method, as a preliminary to complete excision of the lower four inches of the rectum. The patient, a man aged 29, was admitted into the Queen's Hospital, February 20th, 1889. Carcinoma of the rectum had been diagnosed seven months previously in Chicago, and for some months prior to this he had been treated for piles. On admission, a large excavated carcinoma, involving the lower three inches and a half of the rectum posteriorly, but a smaller extent of the anterior wall, was found on digital examination. The tip of the middle finger could just reach healthy bowel, and the growth itself was to some extent movable on surrounding parts. As the patient placed himself unreservedly in his hands, Mr. Marsh decided to perform Madelung's operation as a preliminary. This was done on March 1st, and an account of this appeared in the *Journal* of April 20th, 1889, p. 893. The patient was up on the tenth day. On March 21st, proctectomy was performed. An oval incision was made round the anus, and deeply

down to the coccyx; the rectum was rapidly detached with scissors; and a large cavity was left, bounded in front by the prostate and bladder, behind by the sacrum, and above by the peritoneum, which was not opened. The hemorrhage was free, but entirely controlled by pressure, no vessel requiring ligature. In a week the cavity was lined with healthy granulations; it rapidly contracted, no complications occurred, and on May 20th the patient was discharged, a small sinus only remaining. At the time of speaking, the patient was perfectly well; the wound was almost absolutely closed; he had control over his motions, which were passed once a day. The artificial anus was no trouble to him. He had gained over 20 lbs. in weight, and hoped in a week or two to follow his occupation of cab-driving. (British Medical Journal, Oct. 12, p. 803.)

Cancer of Rectum.—Discussion on the Treatment of.

Mr. W. Mitchell Banks, Surgeon to the Royal Infirmary, Liverpool, said:—With regard to the relative advantages of inguinal and lumbar colotomy, I am not in a position to offer any good opinion, because I have only practised the latter operation. A rather strong point is made of the superior advantages of the groin as a site for an anus over the loin. I think these are rather imaginary, and that the patient can keep himself clean as easily with the lumbar as with the inguinal orifice. All the real miseries of the artificial anus are just as bad in one place as in another. The real point lies in the difficulty of performance of the two operations. In some instances I have found some trouble in finding the colon; and in one, owing to an abnormal position of the gut, I was quite unable to find it. Great assistance can always be derived from inflating the bowel with air with an ordinary Higginson's syringe. The least little distension of the colon serves to indicate its position with certainty. A very great improvement over the usual plan of merely opening the colon laterally, and stitching the lateral orifice to the wound, consists in cutting the bowel clean across and fixing the upper end. The lower end, being tied across with catgut, is simply left in position. With the old proceeding fæces got down below the orifice, and so irritated the malignant disease, but with this they are all discharged. I did this operation first about fifteen months ago. The patient is still alive, and it is impossible to imagine a better anus without attempt at prolapse. I have also done it twice recently, but it is too soon yet to pronounce upon the cases. I cannot but think that the complete division of the bowel as a preliminary to proctectomy subsequently is a step in the right direction, and I have seen with great satisfaction the case exhibited by Mr. Marsh. Finally, I would venture to protest against the too indiscriminate use of colotomy. That it prolongs life and relieves suffering in some cases I admit, but there are others where the prolongation of life is but short, and where the patient continues to live on in a most miserable plight and

in great suffering. Unless there are special circumstances to warrant it, I do not think we are doing the kindest thing to a patient to prolong for a short time a life of agony. (British Medical Journal, Oct. 12, p. 803.)

Cancer of Rectum.—Discussion on the Treatment of.

Mr. McGill remarked that it was most desirable to prevent the passage of fæcal matter below an artificial anus. With this idea he had in three cases substituted colectomy for colotomy in the lumbar region. The first case was performed for prolapse of the mucous membrane several months after the primary operation. Four inches of colon were removed, the upper end of the lower portion of gut was closed by sutures, and the lower end of the upper portion attached to the skin; the result was in every way perfectly satisfactory. In two other cases where the operation was primary a fatal result occurred. The cause was the same in both cases. The fæcal material situated in the gut between the colotomy wound and the disease in the rectum, being unable to escape, had induced a semi-gangrenous condition of the upper end of the gut; fæcal extravasation had taken place, and general peritonitis was thus induced. Mr. McGill thought that it was unwise to repeat an operation of this description unless the upper end of the lower portion of the gut was left open. (British Medical Journal, October 12, p. 808.)

[See also articles on this subject by Mr. T. R. Jessop, Mr. Harrison Cripps, and Mr. Herbert Allingham, pp. 284 to 307 of this volume of the *Retrospect.*]

DIGESTIVE TABLETS.—Antifermentative Formulæ.

L'Abeille Médicale, of April 27, 1889, gives the two following "antifermentative" formulas prescribed by Dujardin-Beaumetz: (1) ℞. Salicylate of bismuth, magnesia, bicarbonate of soda, āā ℥ ijss. Make into thirty powders or tablets.—(2.) ℞. Salicylate of bismuth, naphthol, magnesia, āā ℥ ijss. Make into thirty powders or tablets. Dose: One tablet at breakfast and one at dinner. They are especially valuable in dilatation of the stomach caused by fermentation. (Medical News, May 25, p. 576.)

CHOLECYSTOTOMY.—Results of Operation in 55 Cases.

I have performed the operation of cholecystotomy fifty-five times, and fifty-two of the patients have recovered. One old woman died of suffocative catarrh some weeks after the wound was healed, and two others died of the cancer of the liver which was in all probability the cause of the distended gall-bladder in one of them, for I found no gall stones which I could remove. In the second, the death of the patient four months after the operation revealed extensive cancer with suppuration of the liver. He obtained very great relief from the opening of a suppurating gall-bladder and the

removal of a large quantity of gall-stones. As a matter of fact, in not a single instance did the patient die from the operation. The remainder of these cases are in perfect health, and as well as they ever have been, with one exception, and that exception has taught me a great lesson—amongst others, it has completely satisfied the conclusion which I had previously arrived at, that my late friend Dr. Marion Sims laid down principles from which we are not likely to depart with any advantage, and which, it is true, were to a large extent anticipated by Petit, and the more I see of the operation the more satisfied I am that he practically perfected it, though he did not meet with the success with his own case which he merited. (Mr. Lawson Tait, Edin. Med. Journal, Oct., p. 309.)

GANGRENOUS APPENDIX VERMIFORMIS.—Operation for; Secondary Laparotomy for Suppurative Peritonitis.

A paper on this subject by Sir Dyce Duckworth and Mr. John Langton was read at the Royal Medical and Chirurgical Society on June 11, 1889. The case was that of a boy who exhibited all the symptoms of acute suppuration in the neighbourhood of the cæcum. Operative measures were at once adopted, and revealed a gangrenous condition of the appendix cæci, which was removed together with its contained fæcal concretion. Some days later, a median laparotomy was performed in consequence of symptoms pointing to a fresh suppurative peritonitis on the left side. A collection of some ounces of pus was found in a large cavity bounded by agglutinated intestines. The abscess-sac, which extended deeply into the pelvic cavity, was drained, and the patient made a complete though somewhat tardy recovery. The authors, in bringing this case forward, laid stress on the importance of early operative interference when suppuration in the neighbourhood of the cæcum was supposed to exist, and all the more so in cases of young adults, as the cause was so often due to the presence of some foreign substance in the appendix. They also advocated the value of making the incision in the right linea semilunaris, as being more directly situated over the seat of the lesion than one made in the middle line. (British Medical Journal, June 15, p. 1547.)

IRRITABLE STOMACH & VOMITING.—Lime Water and Milk

Lime water is used as an antacid in a very important and serious class of cases. It is a very general practice, as you know, when the stomach is intolerant of food, to administer milk with lime water—and often with the happiest results. But in many instances the symptoms are not allayed, and the milk is vomited up in hard sour curds. Failure in these cases is often solely due to the feeble antacid property of the lime water. The saturating power of lime water is really very low. Quick-lime dissolves in water only to the extent of about half a grain to the fluid ounce—and this is only equivalent in saturating power to one grain of chalk and to a grain

and a half of bicarbonate of soda. To reach an effective antacid dose, lime water requires to be given in very large quantities—quantities which are altogether impracticable. Six ounces of lime water are only equal to a single ordinary antacid dose of chalk or bicarbonate of soda. I have repeatedly observed in cases of feeding with milk and lime water that failure was simply due to the feebleness of the antacid charge—and that when a solution of 5 to 10 grains per ounce of bicarbonate of soda was substituted for lime water as an admixture with milk, a favourable result was at once obtained, and the vomiting of hard curds arrested. (Sir William Roberts, p. 209.)

JAUNDICE.—Pilocarpine as a Specific for.

In the *Nowiny Lekarskie*, May 1889, p. 230, Dr. Wl. Witkowski writes that hydrochlorate of pilocarpine is a specific remedy for simple hepatogenous jaundice, except cases of malignant or benign new growths of the liver. He uses the drug hypodermically, in the shape of a two per cent. solution, of which he injects a Pravaz syringeful once a day in delicate persons, and twice daily in stronger ones. From the fourth or fifth day of the treatment the individual dose is increased to one-and-a-half syringeful. All subjective symptoms (intolerable itching of the skin, hepatic and gastric pain, &c.) are strikingly alleviated even after the very first injection. Catarrh of the stomach, duodenum and biliary ducts and jaundice disappear in from one to three weeks. The most striking results are observed in cases of inveterate severe catarrhal jaundice of several months' standing, in which all ordinary means fail to bring any relief to itching, hepatic colics, and gastric spasms. On the other hand, in such cases, where the pilocarpine treatment does not bring about any improvement in the course of from ten to fourteen days, the practitioner can be pretty sure that he has to deal not with simple icterus, but with a case of malignant disease of the liver, as a subsequent course of events will prove. Hence, pilocarpine may be conveniently used as a means for the differential diagnosis. The drug may be resorted to in all cases where the patient's heart is found to be more or less sound. Dr. Witkowski's statements are based on nearly thirty consecutive cases of jaundice treated successfully by the remedy during the last three years. One case—his first one of the kind—is adduced in detail. It refers to a woman of forty-one suffering from severe nephritis complicated with enlarged liver, gall-stones, ascites, œdema of the lower limbs, and recurrent jaundice of four years' standing. The patient had been previously treated more or less unsuccessfully by Carlsbad waters, Priessnitz's compresses, abdominal belt, &c. Pilocarpine was resorted to in the dose of one-sixth of a grain, once or twice daily. The results surpassed all expectations. In three weeks the patient was practically well. The woman enjoys good health ever since, three years having elapsed. (Provincial Med. Journal, July 1.)

LAXATIVE POWDER.—Formula for.

Dr. Dujardin-Beaumetz (*L'Abeille Médicale*) recommends the following as a pleasant and reliable laxative:—℞. Powdered senna pods (treated with alcohol), sublimate of sulphur, āā ℥jss; powdered fennel, powdered star aniseed, āā grs. 48; pulverised cream of tartar, grs. 31; powdered liquorice, ℥ij; powdered sugar, ℥vjss. Dose: One dessert-spoonful of the powder in half a wineglassful of water at night. (Medical News, May 25, p. 576.)

MALIGNANT DISEASE OF RECTUM.—Medicinal Treatment.

Much may be done medicinally to alleviate the great suffering and distress attendant more especially upon the later stages of the disease. The washing out two or three times a day with simple warm water, and the introduction into the emptied bowel of a suppository containing cocaine, belladonna, morphine, and iodoform have been attended in my hands with the most comforting results. Laxatives, again, seem called for chiefly in those cases in which the upper portions of the organ are involved, whilst the anal portion is free; and on the other hand, astringent measures and such as tend to solidify the evacuations I have found more suited to the cases in which, the anus being implicated, the sphincters have ceased to act, and the fæces, liquefied by admixture with sanious mucus, are more or less constantly dribbling, to the patient's unspeakable distress. (Mr. T. R. Jessop, British Medical Journal, Aug. 24, p. 407.)

[See Mr. Jessop's articles at pp. 284, 287, 288, of this volume of the *Retrospect.*]

MADELUNG'S OPERATION in Malignant Disease of Rectum.

At the Meeting of the Birmingham and Midland Counties Branch of the British Medical Association on March 14, 1889, Mr. F. Marsh exhibited a man, aged 28, suffering from adenoid carcinoma of the lower three and a half inches of the rectum, involving the whole circumference, but a small extent only of the anterior wall. Fourteen days ago, he performed this operation as a preliminary to excision of the rectum, which he proposed doing in the course of another week. So far as he knew, it was the first case recorded in this country. The usual incision for sigmoid colotomy was made, and the colon found without difficulty. To avoid the possibility of mistaking the opening from a twist of the bowel, a small-sized œsophageal bougie was passed up the rectum into the sigmoid flexure. A loop of six inches was drawn down to anchor the upper end and guard against subsequent prolapse, and the bowel was divided with scissors. A few bleeding points were tied with fine catgut, and the edges of the lower opening were folded in and sutured with a continuous suture (modified Lembert). This end was now returned to the abdominal cavity, and the upper orifice, which had been carefully held by an assistant, was sutured to the edges of the abdominal wound by interrupted sutures passing

through all the structures. The man had not a bad symptom, and made a very rapid recovery, getting up on the tenth day. He thought this operation applicable only to those cases in which the lower end of the rectum was involved. It seemed especially suitable as a preliminary to extensive excision of the rectum. (British Medical Journal, April 20, p. 893.)

PERITYPHLITIC ABSCESS.—The Treatment of.

Dr. Robert F. Weir, surgeon to the New York Hospital, appends the following conclusions to an exceedingly interesting paper entitled on "The Treatment of the So-called Perityphlitic Abscess." (1) That all such abscesses originate in the peritoneal cavity, and there develop to an appreciable size before invading extra-peritoneal tissues or viscera. (2) That as stercoral accumulations or cæcal perforations are so rarely met with as causes of perityphlitic tumour or abscess, they should not be considered from a clinical view in any given case. (3) That in an attack of perityphlitis originating, as it generally does, as a perforation, or as a gangrenous condition of the appendix vermiformis, all use of purgatives or enemata is in the beginning of a case to be avoided, and the immobilisation of the patient is to be insisted on, and aided, if necessary, by anodynes. (4) That if a tumour be found, it be opened by a lateral incision as soon as symptoms, constitutional or local, indicate the formation of pus. (5) That if symptoms indicating an increase of the local peritonitis, such as the persistence of vomiting, spreading pain, abdominal resistance, and temperature elevation, continue, with or without the formation of tumour, for a period of forty-eight hours, the danger of the disease is greater than the proposed lateral or median laparotomy, which should then be immediately resorted to. In many instances even a less time should be afforded the consideration of the disease before operating. 6. If a general peritonitis be suspected, corroboration can often be obtained by abdominal aspiration with a fine needle employed in places other than in the right iliac fossa, and particularly by a deep, hypogastric puncture into the pelvis, the bladder being first emptied. However, if left in doubt, it is better to operate. (7) [*Sub judice.*] That if general suppurative peritonitis be found at a laparotomy, lateral or median, avoid too much handling of the intestines, and trust to either temporary irrigation with large glass tubes (Tait's), or, more rationally, to permanent or repeated irrigation and fluid distention of the abdominal cavity, as advocated by Greig Smith and by Penrose. (8) [*Sub judice.*] To meet the obstruction symptoms due to septic paralysis of the bowels, which often persists after a laparotomy for suppurative peritonitis, saline purgatives and repeated washing out of the stomach should be resorted to, even though vomiting be present to a marked degree. Enterotomy may also, in exceptional cases, be entertained. (Medical News, April 27, p. 456.)

PROCTECTOMY in Malignant Disease of the Rectum.

I think, that in the existing state of our knowledge and experience, proctectomy is an operation of limited application, unsuited to more than a minority of the cases presented to us. When the disease is well within reach of the fingers, and confined to the posterior or lateral portions of the rectum, or if, situated anteriorly, it has not invaded the tissues outside the muscular wall of the bowel, and when also the external sphincter can be preserved in functional activity, I have no hesitation in recommending its adoption; but in those cases in which the disease has originated beyond the reach of the finger, or, having commenced lower down, has crept up to a higher level, we must still, I think, trust to those other less radical measures which till recently constituted our only resource. (Mr. T. R. Jessop, p. 284.)

SENNA PODS.—Their Use as a Laxative.

An infusion of senna pods is almost free from taste and smell; certainly it is devoid of the characteristic odour and flavour of "senna." It appears to increase activity in the muscular movements of the whole gastro-intestinal canal, acting quite as much on the colon and rectum as upon the small intestine. It is slower in its action than an infusion of the leaves, but equally certain; an ordinary dose produces without fail one motion, seldom more, of soft consistence, in from eight to ten hours, and without exciting any congestion of the pelvic vessels, or increasing or aggravating hemorrhoidal or menstrual discharges. It is, in short, a reliable evacuant, free from irritating properties such as cause griping and flatulence; and, if the experience of one case is worthy of mention, it does not appear to be excreted through the milk in the nursing mother, for in one such patient the child was unaffected by its use. Administered regularly for several nights in cases of intestinal torpor, it cleans the tongue, increases the appetite and digestion, and promotes natural evacuation of the bowels, so that the quantity taken requires to be decreased, and eventually it can be dispensed with. The cases in which I have found it most serviceable are those depending upon impaired muscular movements, from defective innervation, usually associated with flatulence and intestinal discomfort. It has also proved useful in cases of hemorrhoids, and in constipation in children, as well as in the aged. Like all purgative medicines, the infusion acts better in some persons than in others, and also in the same person at different times; but, after a fairly extended experience of its use, I have not been disappointed in its utility in any one case, nor have I been annoyed by any untoward effects. I am not sanguine enough to hope that it will meet the exigencies of every case of constipation, but that it is a real addition to our remedies I cannot doubt. It has afforded me better results than any other medicine I have yet used, exceeding in efficacy cascara sagrada; while its freedom from disagreeable taste

is a strong point in its favour. I know of no condition which contraindicates their use, being as harmless as castor oil. The dose for an adult is from six to twelve pods; for the young and very aged, from three to six. They are best infused in a claret-glassful of cold water for six or eight hours. Mr. John Borland, F.C.S., late examiner in the Pharmaceutical Society of Great Britain, of the firm of Rankin and Borland, chemists, Kilmarnock, has kindly prepared for me a plain and simple liquid extract of the pods, the dose being from half a drachm to a drachm in a wine-glassful of cold water at bedtime. It has little taste, and it is exceedingly certain in its action, while it possesses the advantage of always being ready for use. (Dr. A. W. Macfarlane, p. 136.)

STARCH IN ENEMATA AND SUPPOSITORIES.

Mr. Joseph Ince, in the Pharmaceutical Journal for June, touches upon several points of practical interest in connexion with the starch which forms an ingredient in some of the enemata and suppositories of the Pharmacopœia. First he reminds us that we have three varieties of amylum at our command: that procured from the grain of common wheat, that from maize, and rice-starch. The use of rice-starch in preparing the mucilage ordered in enemata is not to be recommended, as the result is poor, even with skilful manipulation. Wheat or maize-starch may be used, the former by preference, as being the more readily procured; from either of them an excellent agent of suspension may be procured. Secondly, the Enema Magnesii Sulphatis presents a dispensing difficulty. According to the official directions we are to dissolve sulphate of magnesium in mucilage of starch, add olive oil, and mix. The result is unsatisfactory: oil of any kind added to a solution of a salt must separate. The method to be followed is simple, and depends on a well-known dispensing arrangement. We must reserve half the quantity of water, and in it dissolve the sulphate of magnesium. Next, we make a starch mucilage with the remaining half of the water; and incorporate the oil with the concentrated mucilage. Finally, we add by degrees the dilute solution of the magnesium salt. Two objects are thus secured—a perfect medicinal compound and an excellent emulsion. (Edinburgh Med. Journal, July, p. 61.)

STOMACH WASHING IN INFANTS.

A. Seibert (*Arch. of Pediat.*, April, 1889) says that though the treatment of gastro-intestinal disturbances in infants by lavage was recommended by Ebstein some years ago, but few physicians have followed his practice, though it has been attended by very favourable results. The indications for this treatment are the following:—
1. In dyspepsia of infants, characterized by regurgitation of food after meals together with no or but slow gain in body-weight. When this condition is not remedied by regulation of the diet, the stomach will gradually grow weaker, and the children ultimately

become shrivelled and withered. A single washing of the stomach will sometimes stop the vomiting and cure the case. The author has treated twelve children belonging to this class. One of them was but seven weeks old and had wasted until it weighed but three pounds. Only two syphonings were required, and the child convalesced without further medication. 2. In acute gastro-intestinal catarrh, or cholera infantum, the washing out of the stomach, as soon as possible after the vomiting has commenced, will often save the life of the child. He has treated twenty-nine cases in this way, and with but four deaths; these occurring in cases already too far gone when the treatment was commenced. There was no evidence that the treatment depressed the patient, but rather that it exerted a stimulating influence. Within a few minutes after washing, the children, without exception, go to sleep quietly for several hours. In twenty-five of the cases vomiting ceased immediately and permanently after the washing, even when milk was given within three hours after. It is the mechanical diluting of the poisons in the child's stomach and the rapid removal of these from the body which constitute the action and value of lavage. 3. In cases of chronic catarrh of the alimentary tract lavage has given better results than any other method of treatment. The process need not be repeated more than two or three times at intervals of forty-eight hours, but irrigation of the large bowel should also be performed three times a day. The author has thus treated fifty-two cases of chronic gastro-enteritis, with recovery in every one. In all of them medicine was used very little and only symptomatically.—Regarding the method employed, the author uses only plain warm water, if possible previously boiled. He passes a soft catheter into the stomach in the usual manner, and then connects this with a tube from a fountain elevated sufficiently to furnish the requisite pressure. After the stomach has been filled, the stop-cock is turned, the tube separated, and the contents syphoned out. The process must be repeated until the water comes back clear. (American Journal of Medical Science, July, p. 80.)

TAPEWORM.—Treatment by Pelletierine.

Bérenger-Férand, who has written a book which is authoritative, *On the Tæniæ of Man*, has published in the *Bulletin Générale de Thérapeutique*, February 15, 1889, an article in which he sums up the cases of tapeworm—in all one hundred and ninety-one patients—at the Maritime Hospital of Toulon during the past year (1888), and the results of treatment. It is still to pelletierine that Bérenger-Férand gives the preference, this tænicide, which is the active principle of pomegranate bark, being by far the most successful of all remedies used. During the year 1888 pelletierine was employed one hundred and fifty-two times as a tænifuge at the Toulon Hospital. Of these cases one hundred and ten were successful, forty-two were unsuccessful, giving seventy-two per cent. of recoveries.

As for the manner of administration of the remedy: the patient takes nothing but bread and milk for supper the evening before; next morning five grains of the sulphates of pelletierine and iso-pelletierine are administered in solution with eight grains of tannin (or half a bottle of Tanret's solution of the mixed pelletierines, the other half to be given in an hour); from 7.30 a.m. to 8 a.m. a full dose of a tablespoonful of the German tincture of jalap is given, or from an ounce to an ounce and a half of castor oil. A few hours after the ingestion of the medicine the patient experiences a slight vertigo, and the tapeworm is voided, as a rule, four hours after the dose is taken. In order to avoid breaking of the worm during its passage and before the head is voided, it is advised that the patient shall sit at stool in a vessel nearly full of warm water. Bérenger-Férand has lately resorted to injections of a decoction of pomegranate bark to assist the expulsion of the worm, and claims that this is an improvement in the treatment. It is needless to say that the above is now the favourite treatment of tænia in France, and Dujardin-Beaumetz affirms that "since we have established these rules of treatment, and wherever patients have scrupulously complied with them, we have had numerous successes, and in nine cases out of ten we obtain the worm with the head." (American Journal of Med. Science, June, p. 609.)

THRUSH AND SORDES.—A Simple Remedy for.

Amongst the ill-fed children of the poorest residents of our large cities thrush is an extremely common and troublesome complaint. The following lotion, to be applied frequently with a feather or brush to the white patches, kills the oïdium albicans more quickly than any other I know, and removes the patches after a few applications, leaving healthy mucous membrane. It consists of equal parts of lotio nigra and glycerine mixed. I attribute its action to the germicidal power of the mercury. The quantity used is so small as to be quite harmless. Another condition in which I have found the same lotion invaluable is in that of the sordes which collect so abundantly on the teeth, lips, and tongue in many cases of enteric fever. It cleans these parts as if by magic, and renders that unpleasant process known as "scraping the tongue" quite unnecessary. It may also with advantage be painted over the fauces, &c., in those unhealthy conditions of the throat which are so common in typhoid. I tried it in one case of catarrhal stomatitis, but it had no effect, whereas chlorate of potash effected an immediate cure. Also in the sordes of advanced phthisis it seems to be of no use. Not having seen this lotion mentioned in any book, and having found it superior to any of the usual preparations in use for these affections, I venture to bring it to the notice of the profession, in the hope that it may prove as great a boon to other practitioners as it has been to myself. (Mr. W. Theophilus Ord, Bournemouth, Lancet, Oct. 19, p. 791.)

TUBERCULAR PERITONITIS.—Laparatomy for.

At the Bologna Surgical Congress, Professor Ceccherelli read a paper on the subject. He described four cases in which he had performed laparotomy, washed out the peritoneal cavity with a solution of thymol, and powdered it with iodoform. In the first, a woman, aged 28, who, after suckling her fifth child began to suffer from loss of appetite and swelling of the abdomen, the surface of the peritoneum was found reddened, œdematous, and studded with tubercles, whilst the cavity contained a large amount of fluid. Up to the date of the report (six months after the operation) she had remained well. The second case was that of a boy, aged 11, in whom slowly increasing ascites was the only symptom. The peritoneum was covered with tubercles. The operation got rid of the ascites, but a month later it had collected again, and laparotomy was done a second time, with some benefit as regards the ascites; there were, however, signs of consolidation at one apex. In the third case, that of a boy of 13, numerous firm adhesions infiltrated with tubercles were found; there was some improvement when he left the hospital, but a month later the belly had enlarged, there was dulness in the iliac region, and a feeling of hardness and resistance on palpation. The fourth case was that of a girl aged 8, who had been ill for only a month, and who had dulness and harsh breathing at the right apex. The peritoneum showed thickened adhesions infiltrated with tubercles. Cultivation experiments gave negative results in this case as well as in the third, but in all the cases the specific microbe was seen with the microscope. Prof. Ceccherelli thought the second case especially important, as the condition of the peritoneum found at the second operation showed the manner in which cure took place. Whilst the pieces of peritoneum removed in the first operation were studded both superficially and deeply with innumerable tubercles, those taken away at the second laparotomy showed none at all in some places, and in others the tubercles were surrounded by a covering of connective tissue of recent formation. Up to the present time, abdominal section for tubercular peritonitis had been performed by various operators in 88 cases with 52 cures and 25 deaths, whilst in 6 there was some improvement, and in 5 the result was unknown. Rabbits inoculated with the mesenteric glands of persons who had died of tubercular peritonitis developed purulent peritonitis, whilst the introduction of shreds of peritoneum obtained by laparotomy caused death in some rabbits. Prof. Ceccherelli had made a series of such experiments, and in all the rabbits on which he had succeeded in producing tubercular peritonitis he had performed laparotomy; the result would be published when the series was complete. His present experience led him to the following conclusions:—There are two forms of tubercular peritonitis, the dry and the ascitic. In the former case laparotomy is useless, because, owing

to adhesions which it would be unsafe to break down, the peritoneal cavity cannot be explored. In the ascitic form of the disease laparotomy is of service, as it allows the cavity to be emptied, and excites adhesive peritonitis with fibrous transformation of the tubercles. Prof. Ceccherelli's views found little favour with his audience, Prof. Durante expressing the belief that whatever benefit was produced was merely temporary, and Drs. Bassini and A. Ferrari citing cases within their own knowledge in which patients had died of pulmonary phthisis from six months to two years after laparotomy. (British Med. Journal, May 4, p. 1016.)

AFFECTIONS OF THE URINARY AND GENERATIVE SYSTEMS.

DIABETES MELLITUS.—Strict Diabetic Diet.

Meats of all kinds except livers; beef roasted, broiled, dried, smoked, cured, potted, or preserved in any way except with honey, sugar, or prohibited vegetables. Mutton, ham, tongue, bacon, sausages. Poultry and game of all kinds. Soups made from meats, without flour or prohibited vegetables. Eggs, butter, cheese, pure cream, curds, oil, gelatine and unsweetened jellies. Fish of all kinds except oysters and the inner parts of crabs and lobsters. Bread, biscuits, and cakes made from almond flour. Spinach, lettuce, olives, cucumbers, mushrooms, water-cresses, green cabbage. Almonds, walnuts, Brazil nuts, filberts, butternuts, cocoanuts. Salt, vinegar and pepper. *Drinks*, tea and coffee, mineral waters, whisky, gin and brandy, in moderation. Claret and Rhine wine. (Dr. C. W. Purdy, Journal of the American Medical Association, March 30, 1889, p. 435.)

Diabetes Mellitus.—Supplementary Diet for.

Cabbage, celery, radishes, cauliflower, green string beans, coldslaw, kraut, young onions, tomatoes, cranberries, apples if not sweet, milk in moderate quantities, and bran bread or gluten bread well toasted. (Dr. Purdy, Ibid., p. 436.)

[See also Dr. Purdy's article on the Dietary for Diabetics at page 147 of this volume of the *Retrospect*.]

Diabetes Mellitus.—Saccharin as a Substitute for Sugar in.

The discovery of saccharin has furnished us an admirable substitute for sugar, since this agent possesses a sweetening power nearly 300 times greater than that of sugar, and a flavour quite as agreeable and pleasant. The tablet form in which saccharin is now put up is very convenient for sweetening coffee, tea, and other beverages. Constant use of saccharin in practice for over a year has convinced me that it is entirely harmless in these cases. (Dr. Purdy, Ibid.)

Diabetes.—A New Bread for Diabetics.

M. G. Pouchet, Professor at the Museum, St. Antoine Hospital, describes in the science column of the *Siècle* a new food stuff for diabetic patients, containing an abundance of nitrogenous substances, and entirely free from starch. All gluten bread contains a certain proportion of starch. The bread in question is made from the embryos of corn. M. Danysz, the discoverer of this new bread, has succeeded in isolating the embryo from its farinaceous endosperm, and has also been able to remove from the embryo all oily or other substance calculated to injure its flavour. After long research M. Danysz has obtained a large quantity of corn embryos; from these flour has been made which is extremely nutritious. Bread made with it is easily digested, and is said to be agreeable to the palate. In many of the Paris hospitals this bread is now used for diabetic patients. (Paris Correspondent, Brit. Med. Journal, Oct. 12, p. 838.)

Diabetes.—French Opinion on Antipyrin in.

The use of antipyrin in diabetes has lately been discussed in the French Academy of Medicine (*Le Progrès Méd.*) Its good results were very strongly advocated by M. Panas, who had found in two cases that daily doses of forty-five grains stopped the sugar in the urine completely, and that the amount of sugar previously passed gradually reappeared in proportion as the amount of antipyrin was diminished. He had found it act quickly in cases where strict regimen along with other drugs had not succeeded in reducing the daily amount of sugar below 450 grains. M. Germain Sée reported that his experience in eighteen cases had been very favourable. They were patients in whom the amounts of sugar passed before treatment had not been more than moderate. In them the antipyrin not only caused the disappearance of the sugar in the water, but also corrected the thirst and the symptoms in the nerves and skin. But in cases of phthisis or very abundant discharge of sugar he had not found it useful. M. Dujardin-Beaumetz agreed on the whole with M. Sée, and remarked that the other bodies of the same chemical group as antipyrin had some antiglycogenetic power. M. A. Robin had found antipyrin specially serviceable when a strict dietary regimen was very irksome and the patient's condition was for a long stationary. In some such cases more starchy foods might be allowed if they were accompanied by doses of antipyrin. Treatment by antipyrin, in fact, might be substituted occasionally for treatment by diet; but it did more harm than good in cases where there was much emaciation and pallor or swelling of the eyelids. M. Worms had not found any notable difference between the results of treatment by antipyrin and by sulphate of quinine. (Practitioner, June.)

NOCTURNAL ENURESIS.—The Treatment of.

Baruch (*Arch. of Pediat.*, April, 1889) comments on the prevalence of nocturnal incontinence of urine in children, and the great diffi-

culty universally found in controlling it. In the New York Juvenile Asylum, which cares for nearly one thousand children, the percentage of cases is about ten. Though the children thus affected have been kept in special wards, and roused once or twice in the night, and though all plans of treatment have been tried, no improvement appeared to be effected. Punishment the author believes to be cruel and unjust, and circumcision he deems useless in most cases, for the reasons which he explains; chief among them being that the girls of the institution suffered quite as frequently as the boys. The failure of medicinal and surgical treatment of the disease the author is disposed to assign to three causes: (1) A difficulty of applying the remedies recommended to the theoretical indications laid down by writers. (2) The impossibility of applying these remedies to the parts supposed to be involved. (3) The absence of evidence that the system, or the part affected, has really been brought under the influence of the remedies administered. To the first cause of failure he has ceased to give further thought, as the theories proposed differ so widely. The third, and the second cause also, so far as internal remedies is concerned, he has succeeded in overcoming during the last twelve months by attending carefully to the necessity of bringing the system completely under the influence of the medicine given. He introduces no new drug, but employs the well-recommended belladonna, or rather its alkaloid, atropina. To obtain success it is necessary to produce the physiological effects of the drug. It is not required to administer the atropina during the day, but sufficient should be given at four o'clock in the afternoon and again at seven o'clock, if needed, to insure dilatation of the pupil. One sixty-fourth of a grain for children from six to ten, and double the quantity for children up to fourteen, will usually suffice. If the afternoon dose has widely dilated the pupil by the evening, the second dose can be omitted. He has so far treated sixty boys in the Asylum in this way, and with surprising results. Although these boys had been in the wet-bed ward for from three months to three years, twenty-nine of them ceased wetting the bed after the first dose of atropine, and most of the others are rapidly improving. (American Journal, July, p. 82.)

PROSTATIC ENLARGEMENT.—Operative Treatment of.

At the Congress of the German Society of Surgery held in Berlin, 1889, Prof. Kummel, of Hamburg, read a paper on the operative treatment of hypertrophy of the prostate gland. He had performed on six patients a partial extirpation of the hypertrophied prostate gland. His cases were very grave, as they had resisted all other methods of treatment. There was fever, bronchitis, and considerable vesicular dilatation. In such cases the operation is indicated, while it is the contrary when the kidneys are seriously involved or when there is a complete paralysis of the bladder. In this last case the

operation is useless, for even after the suppression of the obstacle, spontaneous micturition cannot be reestablished. To extirpate the prostate gland he performs superior cystotomy; the bladder is very carefully washed out, and he then destroys, by the aid of the thermo-cautery, not only the median lobe, but also all the parts of the gland which project into the bladder. He then sutures the bladder, and allows Nélaton's sound to remain in it. Out of six patients, one died from collapse, in another the operative result was negative, four are cured and can urinate spontaneously. (Medical News, July 6, p. 27.)

SUPRA-PUBIC PROSTATECTOMY.—Case of.

At the Clinical Society of London, on May 10th, 1889, Mr. G. Buckston Browne related a case of Supra-pubic Prostatectomy. He began by drawing attention to the fact that all intra-vesical prostatic projections were either egg-like, with the vesical urethral orifice at the apex of the egg, or were modifications of this ovoid projection by reason of some portion of the hypertrophied urethral circumference being wanting. Thus, if the circumference superiorly and laterally were wanting, the result was the so-salled middle lobe enlargement, which acted not only as a mechanical obstruction, but, when large, as a mechanical irritant, causing intense and constant desire to pass urine, and adding terribly to the trials of an elderly man already obliged to pass all his urine by catheter. He condemned all operations for the removal of prostatic outgrowth, practised through the natural passages or through the perineum. He showed how the improvements in supra-pubic cystotomy had prepared the way for Mr. McGill, of Leeds, who was the first to remove supra-pubically portions of the prostate in order to restore to patients practising catheterism the power of normal micturition, and whose practice had been followed successfully by Mr. Mayo Robson. Mr. Buckston Browne then pointed out that in many cases of "advanced prostatic disease" the sufferings of the patients were not due so much to cystitis as to an intensely irritating prostatic intra-vesical growth, and the case he read was to illustrate the immense relief which followed the supra-pubic removal of such tumours. He first saw his patient, a clergyman, in 1885; he was then aged eighty-three, and was suffering from prostatic retention of urine. There had been much difficulty in introducing the catheter. This difficulty was overcome. The prostate was felt by rectum to be only moderately enlarged. During the succeeding three years the patient was seen sometimes on account of vesical spasm and irritation, and was sounded three times for stone, and none found. He was an active man during this period, and passed his catheter every three, four, and six hours. On March 7th, 1889, the patient was seen in consultation with Dr. Andrew Miller, his regular attendant. He was then eighty-seven, and was suffering from intense vesical irritation. The catheter was imperatively called for every hour,

and his screams from vesical spasm were heartrending, in spite of the free administration of morphia. At 9 p.m. ether was administered and the bladder opened supra-pubically. On entering the bladder the cause of the patient's sufferings was at once apparent; not a particle of calculus was found, but growing from below and from the right side of the vesical urethral orifice was an enormous prostatic growth. It was removed piecemeal by finger and forceps, the only difficulty being at first, in getting through the prostatic capsule; when once that was opened, the lobules of the growths shelled out easily, and were removed by torsion, no cutting or tearing being employed. The whole, when removed, weighed nearly four ounces; when all was cleared away, the urethral orifice was level with the adjoining vesical surface, and its upper and left portions intact. There was scarcely any bleeding, and the operation was followed by very little constitutional disturbance, and by complete vesical relief. On the sixteenth day the patient sat up. He was fitted with a supra-pubic plate and tube designed by the author, which enabled him to dress and walk about, and was so comfortable that at present it was thought unwise to allow the supra-pubic wound to heal. The case was brought forward as of interest for the following reasons: (1) The amount of prostatic tissue removed was believed to be the largest on record; (2) the great age of the patient; (3) the severity of his sufferings; and (4) the immense relief afforded by a comparatively recent surgical innovation. (Lancet, May 18, p. 987.)

Supra-pubic Prostatectomy.—Discussion on.

In the discussion opened by Mr. McGill (see his paper p. 338 of this volume of the *Retrospect*) in the Surgical Section of the British Medical Association, 1889, Mr. Bruce Clarke said the rule of his practice had been somewhat as follows. First, to relieve prostatic trouble by daily use of the catheter, and when great irritability of the bladder supervened upon this, if it could not be subdued by any other means, to place the patient in bed, introduce a staff into the bladder and make a small incision in the perineum, with a view of examining with the finger what the actual condition of the prostate was. If the slightest difficulty was experienced in introducing the finger through the prostatic urethra, he thought it was far better slightly to incise the prostate in the middle line, which usually permitted readily the introduction of the finger, and enabled the surgeon to ascertain exactly the condition with which he had to deal. If this were not done and the finger were forced through into the bladder, the prostate was almost certain to be torn, and far more damage would be done to the patient than by a slight incision on the floor of the prostatic urethra. If the prostate was not very much enlarged, the retention of a tube in the bladder for ten days or a fortnight, with or without the aid of an incision, was often quite sufficient to restore to the patient for some time the power of urinating naturally, and at the same time it was quite

possible for a pedunculated portion of the prostate to be removed through the perineal opening. Where, however, he found that the prostate was considerably enlarged and its base much thickened, he always advised that the suprapubic operation should be at once performed. He had operated in all on eleven cases suffering from prostatic obstruction, in all of which success had been complete, with the exception of two, both of whom were practically moribund before they sought advice; but in only two cases had he found it necessary to remove a portion of prostatic tissue by the suprapubic operation. (British Medical Journal, October 19, p. 870.)

Supra-pubic Prostatectomy.—Discussion on.

Mr. Jordan Lloyd referred to three cases in which he had successfully performed this operation: the first in a man 66 years of age, who had suffered from prostatic symptoms for several years. The tumour was the size of a pigeon's egg, and situated to the left. His symptoms were quite relieved. The second, aged 65, was done during an attack of acute retention which had lasted thirty hours. Catheterisation had been tried ineffectually, and a large false passage made. The bladder was contracted, and did not rise above the pubes. A growth the size of a Tangerine orange was removed, and the patient made a good recovery. Hiccough set in on the fourth day and nearly proved fatal. The third case, aged 70, was associated with calculus. The growth consisted of a lobular swelling of the size of the end of the thumb, and also of collar enlargement. The swelling was removed, and the collar cut through freely. Relief to all symptoms followed, but five months afterwards an opening still remained. Mr. Lloyd expressed his general approval of the operation. (Ibid, p. 870.)

Supra-pubic Prostatectony.—Discussion on.

Dr. William Macewen, Glasgow, said: No doubt a large number of cases of enlarged prostate could be suitably treated by self catheterisation, but there were others where this treatment failed, and more radical measures were necessary. For such, perineal drainage afforded great relief, though this was often only temporary, and the patient was subject to recurrence unless he submitted to the establishment of a permanent urinary fistula with all its attending discomforts. Perineal prostatectomy had had in his hands fair results, though it left much to be desired. Looking at Mr. McGill's operation from an *a priori* point of view, it promised to be much better, as it attacked and completely removed the pathological cause of the disturbance, thereby producing a radical cure. The patients seen at the demonstration in the Infirmary were proofs of the success of the operation. Judging from his own experience of supra-pubic operations for stone and tumours of the bladder, he was convinced that supra-pubic prostatectomy was a practical operation, and one which he was inclined to practise. Professor Trendelenberg's posture for supra-

pubic operations would facilitate the procedure, as in the removal of pelvic tumours he (Dr. Macewen) had experienced the good effects of a somewhat similar posture in withdrawing upwards the abdominal contents and so leaving the pelvis free. Extra care was necessary in administering chloroform while the patient was in this position, especially in the aged. (Ibid, p. 872.)

UNILATERAL INTERSTITIAL NEPHRITIS.

At the Pathological Society on April 16th, 1889, Dr. Crooke read a paper on Unilateral Interstitial Nephritis, caused by pressure upon the ureter and hilus. The changes, of which he showed several microscopical specimens, were produced by mechanical pressure, the results being histologically analagous, if not identical, with the changes found in that form of disease known as granular contracting kidney. In one case the pressure was limited to the excretory duct of the kidney, whilst in another it was exerted on the blood-vessels as well. But while the result in both was the same—viz., atrophy and contraction of the kidney—under the microscope histological differences were seen. The first case, a girl of sixteen, was one of cystic tumour in the right broad ligament, which pressed on the ureter; the urine was albuminous, and a few granular casts were found. Ovariotomy was done, but death occurred six weeks later of bronchitis and purulent peritonitis. The right kidney was much contracted, the capsule thickened, and the surface granular. On section it was tough, but there was no visible thickening of the arteries or signs of dilatation of the pelvis or ureter. Microscopically there was marked dilatation of the convoluted tubules in the subcapsular portion of the cortex, the majority of which were distended with a clear coagulated exudation, and showed atrophy of their epithelial lining; there was dense small-celled infiltration of the inter-tubular stroma, and a few of the Malpighian corpuscles were seen dilated and filled with exudation. In the deeper parts of the cortex were oval spindle cells, which showed organisation and contraction. The opposite kidney was large, and was the seat of cloudy swelling. There was no dilatation of the ureter, and there was absence of glomerular and arterial changes. The second case occurred in a young man aged twenty-one. It was one of chondrifying sarcoma, with several growths, one of which pressed on the left ureter and vessels. There was marked endarteritis of the smaller branches of the renal artery, general fibroid degeneration of the cortex, with thickening of the stroma, almost indistinguishable from arterio-sclerotic granular nephritis. The right kidney was natural. The non-dilatation of the ureter might be explained by the pressure on it being relieved when the tumour rose above the pelvic brim. The vascular change was probably the most important one. Dr. Carter had recently observed a case in which an aneurysm pressed on the renal vessels of one side, and produced changes practically the same as those he had recorded. (Lancet, April 20.)

URÆMIA.—Use of Morphia in.

At the Medical Society of London, on April 8, 1889, Dr. Stephen Mackenzie read a paper on this subject. He prefaced it by depicting the suffering often witnessed in patients suffering from uræmia due to Bright's disease, and was sure any suggested treatment for the relief of the distressing symptoms would receive careful consideration and discussion, even if it ran counter to current teaching. He then narrated the following cases: Case 1 was a woman, aged 38, suffering from chronic diffuse nephritis of some years' standing. There were anasarca, ascites, and breathlessness, the urine contained from one-half to two-thirds of albumen. The heart was hypertrophied, and there was double papillo-retinitis. She was treated for the renal symptoms with great benefit, and in about six weeks was free from dropsy and breathlessness, and was able to leave her bed. One evening, after unusual exertion in the afternoon, she was suddenly attacked by intense dyspnœa, with respirations fifty in the minute. The heart's action was weak, 150 to 200 per minute; she was cyanosed and covered from head to foot with clammy sweat. She was in a condition of mental excitement, with great terror of dying. She was treated with nitrite of amyl, alcohol, ammonia, and ether, without any relief, and then one-sixth of a grain of morphine hydrochlorate was injected hypodermically. In a few minutes the dyspnœa became less urgent, in twenty minutes the patient was able to lie down, and on the following morning was in her usual condition. Several subsequent attacks were treated in a similar manner after the failure of other remedies. Morphine hypodermically and internally never failed to afford relief, and at no time were toxic effects induced. The patient died three months and a half after the first attack of dyspnœa of symptoms of chronic Bright's disease. Case 2 was a woman, aged 28, suffering from granular kidneys of four years' standing. There was considerable anasarca, about one-third albumen in the urine, hypertrophy of the left ventricle, with mitral incompetency, and double papillo-retinitis. She suffered much from breathlessness and headache. After decided improvement for a time, she suffered from severe headache, nausea, breathlessness and irregular action of the heart, and great sleeplessness. Chloral, bromides, nitroglycerine, and inhalations of oil of juniper, were used without effect, or with little effect. Liq. morphine hydrochlor, ℥x, was then administered with rapid alleviation of all the symptoms. It was repeated on many subsequent occasions with equal benefit, and with no drawbacks. The patient died of the combined effects of a carbuncle and the renal disease, about two months after the treatment was employed. Ten-minim doses of the solution of morphine always promptly relieved distressing symptoms, five-minim doses were not sufficient. The author proceeded to point out the safety with which the morphine was given in these and other

recorded cases. There was a deeply rooted belief, possibly well founded, in the danger of opium and its alkaloids in renal disease. It was quite clear that this subject required further investigation; not only might morphine be given with safety in cases of uræmia, but with positive advantage, as in the cases narrated. Next followed a brief consideration of the nature of uræmia, and it was concluded that: 1. Uræmia was a poisoning of the nervous system —a toxæmia. 2. The poison was developed within the body of the patient—autotoxæmia. References were made to the writings of Grainger Stewart, Dickinson, and Carter, and more especially to the researches of Bouchard, who had described seven toxic elements in the blood in uræmia. The principles of the treatment of uræmia were declared to be three:—1, the elimination of the poisons; 2, the counteraction of the poisons; 3, the prevention of the retention of further poisons. After discussing the first and last principles of treatment which should always be employed, he proceeded to point out that the value of morphine was to fulfil the second indication. The author next discussed the nature of uræmic dyspnœa, headache, and convulsions, and attributed the beneficial effects of morphine to its freeing the blood-vessels from the spasm induced by the poison in the blood. He referred to the writings of Loomis and his followers, and to cases recently recorded by Mr. Alfred Grace, where morphine had been administered in as large quantities as from one half to one whole grain for a dose, by hypodermic injections, with the best results. He concluded by saying he thought enough evidence had been brought forward to show that morphine deserved further trial in uræmia. He did not recommend its indiscriminate use, and in the light of the asserted susceptibility of patients with disease of the kidneys to the toxic effects of opium, it would be given with eyes open to its possible danger. There could, however, be no doubt as to its immediate good in suitable cases, and it was probable more lasting good would result in cases of a curable kind. (British Medical Journal, April 13, p. 837.)

URETHRAL STRICTURE.—Linear Electrolysis in.

M. Lavaux reports (*Annales des Maladies des Organes Génito-Urinaires*, April, 1889), at a recent séance of the Academy of Medicine, that the results observed and collected by him in the cases of urethral stricture treated by electrolysis showed that, after the lapse of time, the cures were no more permanent than after divulsion or internal urethrotomy. Among a number of patients operated on seven or eight years ago by Mallez and Jardin the stricture had returned in every case. He concludes that no permanent cure has been discovered, and that rapid dilatation with careful attention to asepsis of the bladder and canal is the preferable method of treatment. (American Journal of the Medical Sciences, June, 1889, p. 629.)

AMPUTATIONS, FRACTURES, DISLOCATIONS, AND DISEASES OF THE BONES, JOINTS, ETC.

ARTHRECTOMY.—Cases to which it should be Limited.

My conclusion in reference to the operation, based on my own experience of it, and not contradicted by the published results of other surgeons, is that it ought, meanwhile at least, to be very strictly limited. The cases in which it may legitimately be tried are, in the first place, those only in which a thorough and prolonged treatment by rest has been unsuccessfully employed. If the patients come under observation early, this want of success should be rare. A second limitation should be to those in whom the skin is as yet unbroken, because the operation being less thorough, the drainage more difficult, and complete ankylosis less sure, recurrence of the disease is more probable, and the risk of the procedure not less than with more radical treatment. Again, it should be employed chiefly in children; because in them only can the main advantage, continuance of growth in the limb, be of any avail, and in them only may the accidentally favourable mobility be legitimately in some cases expected. I would not assert that further extension should not be given to the operation in exceptionally favourable cases, when, for example, the personal and family history are free from tubercular taint, the patient is otherwise robust, and the disease slow and not purulent. But a thorough trial by rest, youth, and asepsis seem to me nearly essential conditions. (Dr. John Duncan, American Journal, April, p. 369.)

[See also Dr. Duncan's article on Excision as compared with Amputation in Strumous Arthritis of the Knee at p. 238.]

ASEPTIC BONE CAVITIES.—Healing of by Implantation.

Professor Senn apends the following conclusions to an important paper on this subject (for which see p. 247 of this volume of the *Retrospect*). 1. Antiseptic decalcified bone is the best substitute for living bone grafts in the restoration of a loss of substance in bone. 2. In the treatment of bone cavities, antiseptic decalcified bone is preferable to Schede's blood-clot, as it is not only a perfectly aseptic, but at the same time, also a strongly antiseptic substance. 3. Implantation of a disk or plate of antiseptic decalcified bone into a cranial defect may be relied upon as a hæmostatic measure in arresting bleeding from the vessels of the diploë, it constitutes a good temporary substitute for the lost portion of the cranium, it prevents the direct union of the brain or its envelopes with the pericranium, and, finally, it furnishes the most favourable condition for the production of new bone from the margins and the closure of the remaining defect by a firm and unyielding membrane. 4. The packing of an aseptic bone cavity with chips of antiseptic decalcified bone guards against unnecessary loss of blood and exerts a potent

influence in the prevention of infection by pus microbes that might have remained upon the surface of the wound or in the tissues. 5. Capillary drainage by an absorbable drain should be established after implantation for the purpose of preventing the accumulation of more blood in the wound than is necessary to form a temporary cement substance between the bone chips and between the contents of the cavity and the surrounding tissues. 6. In the treatment of an aseptic bone cavity by implantation of chips of antiseptic decalcified bone, the packing answers the purpose of an antiseptic tampon and furnishes the best medium for the growth and development of the tissue resulting from the regenerative process initiated by the trauma. 7. Secondary implantation can be successfully practised in the treatment of a suppurating bone cavity after suppuration has ceased, and the cavity can be transformed into the same favourable conditions for healing as an aseptic wound. (Dr. N. Senn, American Journal of Medical Science, Sept. p. 242.)

CONTRACTION OF JOINTS.—Injection of Cocaine in.

In primary inflammatory contraction of the joint, that is, in those cases where a contraction of the joint results from an inflammatory irritation or from an inflammation of any of the constituents of the joints, Lorenz recommends (*Wiener klin. Wochenschrift*, No. 9, 1889) as the simplest and surest treatment for the removal of the muscle-spasm, injections of cocaine into the respective space of the joint. He uses for this purpose a common Pravaz syringe with a somewhat longer needle, and injects with antiseptic precaution one-half or a whole of a syringe of a 10 per cent. solution of cocaine into the joint. Immediately after the injection the pain disappears, and a few minutes later the joint may be put into the correct position and fixed, or extended. This mode of treatment is especially recommended for the correction of spastic club-foot. Children bear cocaine very well; in adults more caution is necessary, a few centigr. often being sufficient to produce the desired effect. In Albert's clinic a general narcosis is no longer used for primary inflammatory contractions. (Journal of the American Medical Association, Aug. 31, p. 308.)

FRACTURES AT ELBOW JOINT.—Point in Treatment of.

The editor of the *Philadelphia Med. and Surg. Reporter* says:—One point, which is often, we fear, overlooked, must be constantly borne in mind, namely, that in the normal arm the axis of the forearm is placed at an obtuse angle to the axis of the upper arm. The rectangular splint generally employed in the treatment of fractures at the elbow-joint almost of necessity brings the axis of the forearm into the same plane with that of the upper arm, and this can only be done by forcing the lower fragment into an unnatural position. The result is sure to be a permanent deformity, and more or less functional disability. (Edinburgh Med. Journal, Aug. p. 198.)

FRACTURE OF NECK OF FEMUR.—Treatment of.

Dr. N. Senn, of Milwaukee, appends the following conclusions to an article on the Treatment of Fractures of the Neck of the Femur by immediate reduction and permanent fixation:—1. From a scientific, prognostic and practical standpoint it is not necessary to make a distinction between intra- and extra-capsular fractures of the neck of the femur. 2. An impacted fracture of the neck of the femur will unite by bony union, provided the impaction is not disturbed and is maintained by appropriate treatment for a sufficient length of time for the fragments to become united by callus. 3. Impacted fractures of the neck of the femur should be treated by a fixation dressing consisting of a plaster-of-Paris case, including the fractured limb, the pelvis and the opppsite limb as far as the knee, in which a splint should be incorporated by which lateral pressure can be secured in the direction of the axis of the broken femoral neck. 4. Unimpacted fractures of the neck of the femur, both intra- and extra-capsular, should be treated by immediate reduction and permanent fixation, so as to place the fragments in the same favourable condition during the process of repair as in impacted fractures. 5. Reduction is effected most readily by auto-extension and traction upon the fractured limb with the patient in the erect position, resting his weight upon the sound limb. 6. The fixation dressing should not be removed and the lateral pressure should not be discontinued for from ten to twelve weeks, the shortest space of time required for bony union to take place. 7. Patients who have sustained a fracture of the neck of the femur should not be allowed to use the fractured limb earlier than four to six months after the accident, for fear of establishing a pseudo-arthrosis at the seat of fracture. 8. The functional result is greatly improved by passive motion, massage, and the use of the faradic current. (Journal American Medical Association, Aug. 3, p. 159.)

FRACTURE OF PATELLA.—New Method of Treatment.

At the Clinical Society on May 24th, 1889, Mr. Mayo Robson related a case of Transverse Fracture of the Patella, which he treated by a new method to secure bony union without opening the joint. The bone was broken just below the middle, as the indirect effect of a fall. He pointed out how unsatisfactory were the results obtained by the methods usually resorted to, and added that although he had never met with an accident in wiring the fragments, yet it was impossible to shut one's eyes to the fact that the patient was exposed to a great risk. He had therefore applied himself to the discovery of a method whereby the advantages of bony union might be secured without incurring the risk of opening the joint. In this case the skin over and around the joint was cleaned and rendered aseptic, and the joint was then aspirated. He then obtained two long steel pins with glass heads such as ladies use for fastening the

bonnet, and having thoroughly purified them, he drew the skin well up over the upper fragment and introduced the needle transversely through the skin and muscle just above the level of the upper fragment, repeating the operation with the other needle at the upper end of the ligamentum patellæ. Gentle traction on the pins then easily brought the fragments into apposition. The ends of the pins were then clipped off, leaving about half an inch on either side and the whole covered with antiseptic gauze. This dressing was left undisturbed for three weeks, and when it was removed there was no redness or other sign of irritation having been caused. The temperature was never above normal, and the patient felt very comfortable all the time. The fragments seemed well united, and the needles were therefore withdrawn, a plaster-of-Paris splint applied, and the patient allowed to go home. He pointed out that the only precaution necessary was to draw up the skin over the upper fragment, in order to avoid undue traction upon it when the fragments were approximated. The integument should be rendered aseptic as well as the pins, and the latter should be stout enough not to bend when drawn upon. If there was much effusion, it would be desirable to aspirate. As union occurred without the throwing out of any amount of provisional callus, it was always well to insist upon the use of a Thomas's splint for some time after. The advantages of the operation were its simplicity, the absence of risk, and the obtaining bony union. He said that this was the second case of the kind upon which he had operated, and more recently he had performed the same operation in a case of fracture of the olecranon, but it was as yet too early to say anything as to the result. (Lancet, June 1, p. 1084.)

Fracture of Patella.—New Extra-Articular Suture.

At the Royal Academy of Medicine in Ireland on Feb. 22, 1889, Mr. Myles described a new method which he had devised, of extra-articular suture of the patella, to bring about bony union in transverse fractures. The method consisted in passing a strong pin transversely through each fragment of the patella, and then bringing these together by a figure of 8 suture. (British Med. Jour., March 16.)

Fracture of Patella.—Treated by Wiring the Fragments.

Dr. Ceci, at Surg. Congress of Bologna, reported eleven cases which he had treated by subcutaneous wiring with buried sutures. The patients were for the most part between 50 and 78 years of age. In nearly all the cases the fracture was simple and transverse, but in one there was comminution of the lower fragment, and in another, a man aged 69, the bone had been broken a second time two months after the first accident. Dr. Ceci uses silver sutures. All the cases had done well, hæmatoma and non-infective arthritis having occurred only once. (Ibid. May 4.)

LOOSE BODIES IN JOINTS.—Antiseptic Removal of.

Dr. Samuel B. Woodward (*Boston Medical and Surgical Journal*, April 25, 1889) has been able to collect (principally from English and American sources) 105 cases where claim of direct antiseptic incision of a joint for removal of a foreign body is made. In 10c of them the knee was the joint affected. The list includes, i4 addition to 92 operations for the simple removal of over 740 loosn cartilages (400 in one instance being present), one operation where, besides the removal of a cartilaginous body, a vascular tumour, two inches in diameter, was cut away with scissors, and another where a bony tumour was removed with a saw. In one case the foreign body proved a sarcoma; in one a fibroma; in one a lipoma; and in another a fibro-fatty tumour. In two cases loose pieces of bone were removed; in one a thorn, supposed before the operation to be a spicula of bone, and twice bullets were extracted. One of these had been thirteen years in the joint. In two cases "nothing could be found;" but, in one of these, adhesions on the back of the patella were forcibly broken up. There was but one death from the 105 operations, and, as that was due to "phlegmonous erysipelas," the asepsis of the operation is at least doubtful. In two cases suppuration demanded amputation of the thigh, after which the patient recovered. One of these cases was after removal of a "fibro-fatty body" by Dr. R. F. Neil, where there was "severe manipulation" of the joint; the other was at St. Thomas's Hospital, and no particulars are given. Stiffness of the affected joint is reported in three cases. In one of these cases 400 loose cartilages were removed, and in the other two 25 and 4 respectively. In four other cases slight impairment of motion is reported. In one of these there were adhesions and stiffness before operation, but no loose body. The second was one where a bony tumour was also sawed off. In the third, recovery was complicated by a secondary hemorrhage, rheumatic fever, and pericarditis. Of the fourth, we have no particulars. In all other cases prompt recovery, with good motion of the affected joint, resulted. In place of Larry's death-rate of 21.3 per cent. and Barwell's of 8.3 per cent., we have here a death-rate of less than 1 per cent. (0.9 per cent.), with great doubt whether the single death should be recognized as the result of an antiseptic operation; while in but ten cases (9.5 per cent.) was there failure to produce a perfect joint with good motion. With proper care before, during, and after this operation, there seems to be then but a remote chance of loss of limb, and almost no risk to life, and although in complicated cases there is possibility of more or less resulting stiffness, it is to be remembered that a joint containing loose cartilage is a constant source of annoyance. (American Journal, June, p. 630.)

SPINA BIFIDA.—Surgical Treatment of.

Dr. Carl Bayer (*Prager Med. Wochens.*, No. 20, p. 227) reviews the treatment of spina bifida recommended by other authors, and

rejects the use of the seton, the injection of iodine, and the excision of a portion of the sac, as being at the same time unsatisfactory and dangerous. He urges that the condition is one analagous to hernia, and should be treated in a somewhat similar manner; that the danger of meningitis in the one case is no greater than the danger of peritonitis in the other, and that as compared with the operation above-mentioned, it is both safer and more radical. In a child, ten days old, in which there was a large meningocele of the size of an apple, and who had already developed bed-sores, he performed the following operation :—The child was chloroformed, and the region of the bed-sores cleaned and rendered aseptic. Two lateral flaps were made from the skin covering the tumour and were dissected down to its pedicle. The child was turned on its belly in order to avoid excessive loss of cerebro-spinal fluid, and the sac of the meningocele was opened. The cauda equina was seen flattened out upon the posterior wall of the sac. It was loosened after dilatation of the incision, although in effecting this a slight laceration occurred on account of inflammatory adhesions. Two small arteries were ligated at the end of the cauda. No alteration of pupils and no spasm of the extremities were noticed. The cauda was replaced in the spinal canal, and the sac of meningocele was removed, leaving only two lateral flaps of the dura, which was sewed together after thorough antiseptic cleansing of the wound. The muscles and skin were afterwards brought together separately. The child recovered completely. Bayer suggests that possibly in the future through a greater development of the technique of the operation, a bony roof over the sewed sac may be produced by forming two lateral periosteal flaps from the canal of the sacrum. (Amepican Journal of Med. Science, August, p. 199.)

SUPPURATIVE PSOITIS.—Trephining the Pelvis for.

In the *Revue de Chirurgie* for March, Dr. Michel Gangolphe, of Lyons, has a noteworthy article on this subject. He gives the histories of two cases of his own and a case of Boucher's, and refers to articles by Weiss, Fischer, Rinne, and Condamin. His conclusions are that infectious and even traumatic psoitis is of exceptional gravity, whether on account of the patient's general condition or of the extent of the local trouble, especially the possibility of implication of the hip-joint; that early evacuation of the pent-up pus is the best means of preventing a fatal issue; that trephining of the pelvis, as practised by him, is easily and rapidly done, is free from danger, and admits of the establishment of perfect drainage of the iliac cavity; and that, according to the features of the particular case, it may be associated with one of the classical lumbar, inguino-crural, or posterior crural incisions. The situation that he considers most eligible is a point nearly three fingerbreadths below the crest of the ilium, and three fingerbreadths behind the anterior superior spine. (New York Medical Journal, May 18, 1889.)

GENERAL SURGERY.

DRAINAGE.—Suppression of in Major Surgical Operations. At a recent meeting of the Société de Chirurgie (*L'Union Médicale*, May 9, 1889), Jules Bœckel read a communication upon the above subject. After having for some time left in his drains for twenty-four hours, he now had come to omitting them completely. He had at first done this only in minor operations, but now he employed no permanent drainage whatever. He gave the results obtained in thirty-three major operations of every sort, among which were extirpation of the breast, resection of the knee, amputation of the thigh, excision of cervical and inguinal glands, etc. Among his thirty-three cases he had but two deaths. One was from tuberculous meningitis and the other from pneumonia. Most of the operations were exceptionally grave and complicated, as, for example, one for removal of the breast, the axillary glands, and the glands from below and above the clavicle, necessitating an osteotomy of that bone and a suture of the divided ends; no drainage was employed, and the wound healed in fifteen days under one dressing. In resection of the knee he obtained entire union of the wound without suppuration, in from twenty-five to thirty days. To procure these results he thinks the most essential factor is rigorous antisepsis during the course of the operation. He recommends washing the hands frequently in hot water and in sublimate solution, the avoidance of sponges, drying the wound with antiseptic gauze, using as few ligatures as possible, putting in sometimes a "pseudo drain" made of an absorbable crayon of iodoform, and, finally, using only a single dressing with firm compression. In the discussion which ensued, Ségond thought that drainage should only be omitted in cases where there was complete asepsis, and in which it was possible to make prolonged compression. Ollier, while often prompted to omit drainage in resections of the knee, had never dared to do so. He thought that in old cases where there are periarticular purulent foci, it is not safe to dispense with the drains. We may adopt a middle plan in the use of absorbable drains, such as catgut threads, decalcified bone, etc. Réclus has not employed drainage since 1887. He has had excellent results, and has had few cases of suppuration. (American Journal, July, p. 84.)

DRAINAGE TUBES.—Pressure as a Substitute for in Wounds. At the Leeds and West Riding Medico-Chirurgical Society on May 3rd, 1889, Mr. McGill said that for the past four months, at the suggestion of the resident surgical officer, Mr. Littlewood, he had dressed all his hospital cases by pressure evenly and firmly applied by bandages over a large quantity of salicylated cotton wool. Where practicable Esmarch's plan was carried out, the elastic band and tourniquet being applied, the larger vessels only

ligatured, and the tourniquet removed after the dressing had been fixed. The wound was copiously irrigated by mercuric chloride solution, and in the case of small wounds the sutures were applied closely, in larger wounds at wider intervals. The skin almost invariably healed by first intention, and occasionally serous discharge found its way through the suture holes. The method had certain advantages and disadvantages. Among the former he enumerated the following: 1. The period of the first dressing could be almost indefinitely delayed, rendering primary union more probable. 2. Hemorrhage was much diminished. 3. The time occupied in operations was much less—a very important point. On the other hand, the plan was open to the objections that if asepsis were not perfect the retained serous discharges would putrefy; there was a greater risk of pyæmia, and a retained hemorrhage in two of his cases had suppurated, the wounds healing by second intention. Cases of excision of knee, hip, and ankle, removal of tumours, and immediate closure of chronic abscesses were related, illustrating the results of the treatment. One of the best results he had obtained was in the case of a man with gangrene of the left foot, from whom the four outer toes had been removed. The gangrene, however, spread, and on Feb. 4th he was delirious and almost moribund. Amputation was done at the knee-joint, the popliteal artery only tied, and considerable pressure applied over cotton-wool padding. On February 7th the wound was dressed; on the 12th it was healed, and the next day—the ninth day after operation—the patient got up. Several cases were described in which the treatment was less successful. Reviewing the cases generally he was of opinion that in suitable cases, that is, where complete asepsis could be obtained and pressure properly applied it was a distinct advance. On the other hand, there were many cases, such as wounds with extensive sinuses and in localities like the neck, in which one could not dispense with drainage tubes. (British Medical Journal, May 11, p. 1120.)

GOITRE.—Kocher on a Further Series of 250 Cases.

(Fraenkel in *Centralb. für Chirurgie*, 1889, No. 12.) Of the 250 cases operated on, only six ended fatally, a mortality of 2·4 per cent. Of these six, three were malignant (of 20 such operated on), and one an exophthalmic goitre (of 5 such cases). Excluding them, the death-rate would be but 0·8 per cent. Wound-treatment was aseptic rather than antiseptic. Catgut has been definitely given up. In the present state of our knowledge, the term *cachexia strumipriva* must be altered to *cachexia thyreopriva*, and it remains an essential condition that at all thyroidectomies a functionally active part of the thyroid gland be left behind. Kocher would only ligature *all* the thyroid arteries in cases of exophthalmic goitre. He reserves the term enucleation for operations involving merely the removal of goitrous nodules and cysts from the surrounding capsule of ordinary

gland tissue. He has long used a method which he terms *Evidement.* In this the goitrous nodules are cut into and divided at once, and the segments extracted with the fingers and sharp spoon. Enucleation is easier and safer than extirpation, but it is doubtful whether it protects against recurrence. In general, extirpation is the operation for diffuse, enucleation for nodular disease. (Edinburgh Med. Journal, Oct., p. 399.)

LANOLIN AND PERCHLORIDE OF MERCURY in Surgery.

According to a paper by Dr. A. Gottstein (*Therap. Monatsch.*, March, 1889), lanoline with perchloride of mercury possesses several important surgical advantages. Koch has already shown the relative inefficacy of carbolised oil. Gottstein now asserts that although oil, lard, and fat completely prevent the action of antiseptics, lanoline with perchloride of mercury is as powerful a disinfectant as an aqueous solution of the perchloride. In the treatment of large ulcerated surfaces he considers that this combination will be serviceable, as it will minimise the risks of absorption, while it will ensure a more complete covering of the affected part, and its preservative action will be more continuous. Ebstein, in the *Deutsche Med. Woch.*, confirms these views, and recommends the employment of this combination in the treatment of threatened bedsores; and from Dr. George Meyer of Berlin comes the suggestion that it can also be used to protect the hands of surgeons during antiseptic operations. The roughness and disfigurement of the hands, caused ordinarily by strong solutions of carbolic acid, are said to be obviated by lanoline. In spite of the conflicting statements hitherto made of the absorptive powers of lanoline, it appears to have been conclusively proved that, even in the absence of perchloride of mercury, it is unfavourable to the percolation and development of micro-organisms. It is highly probable that its true use as a protective has now been established by Dr. A. Gottstein. (Lancet, April 27, p. 853.)

SALOL as a Surgical Dressing.

At the Hunterian Society on April 10th, 1889, Mr. Corner exhibited a series of cases illustrative of the antiseptic power of salol (salicylate of phenol) as a dressing for wounds, after the part had been rendered aseptic by a 1 in 20 solution of carbolic acid. Salol had a pleasant aromatic odour, could be used freely without fear of irritation or poisoning, was absorbent of moisture, and whilst drying formed a hard but friable covering. It prevented putrefaction, but did not destroy it when established. It had been used in increasing frequency for several years at the Poplar Hospital, and with excellent results in compound fractures and dislocations, also as a dressing in amputations, minor and major, and in compound comminuted fracture of the skull. The first case shown was a compound comminuted depressed fracture of the frontal bone, in which the bone was elevated, and some spicules removed, the wound being afterwards

washed with 1 in 20 carbolic acid, the opening filled with salol, and a drainage-tube inserted. The dressing was undisturbed for fourteen days, remained sweet, and the wound healed on the twenty-sixth day. The temperature remained from the first under 100.° A second case treated in January, 1889, was a compound fracture of the olecranon, head of radius, and humerus, opening the elbow-joint, with considerable damage to the soft parts, the elbow having been crushed by the passage of a railway engine over it. The olecranon was split and drawn up, causing serious tension of skin, and necessitating removal of both portions. The antiseptic treatment and dressing were the same as in the previous case, but required changing after four hours and again next day in consequence of oozing through; the parts were then left undisturbed for thirty days. The temperature went up the day after the injury, and remained about 101° F. for three days, 100° F. for two days, then became normal. Two other cases were shown, one a crushed compound fracture of the finger done up twenty-one days before, and not exposed since, there having been neither pain nor elevation of temperature; the other was a compound fracture of the first phalanx of the finger, dressed at the time of the accident, and undisturbed for a month, when it was found perfectly healed. It was pointed out that this was the common experience in such cases, and that even if gangrene followed the parts remained sweet. (British Med. Journal, May 4, p. 1000.)

SCROFULOUS GLANDS.—Importance of Rest.

The most important local measure consists in giving rest to the part. Rest is a primary factor in the treatment of all inflammatory conditions. The disregard of this simple means is often forcibly illustrated in the treatment of the strumous neck. A patient with an inguinal bubo in a state of suppuration is not allowed to walk, and the subject of inflamed glands in the axilla is not allowed to use the arm. Yet a child with an identical affection of the cervical glands is permitted to keep the neck in almost incessant movement. The neck of the child is seldom at rest, and the obstinacy of glandular affections of the part, and the sinuses that result therefrom, is certainly due in very great measure to the fact that the movements of the neck are in no way restrained. The neck may be kept at rest by a simple home-made stock, or by the wood-wool collar used by Mr. W. Knight Treves at the Margate Infirmary, or by the special splint I described some years ago. In children or adults with long hair this splint may be so worn as to be unobserved. Of the good effects of the treatment by rest I can speak in emphatic terms, especially in the earlier stages of the disease, and in cases where suppuration is threatening. The measure of the good result may be estimated by comparing cases of inguinal gland disease treated by rest with an equal number treated during unrestrained movement of the limbs. (Mr. Fredk. Treves, p. 257.)

STRUMOUS GLANDS.—Treatment by Turpentine and Scraping.

The best method of treating a softening strumous gland with which I am aquainted is as follows: Give the child chloroform. Make a very small hole in the gland with a tenotomy knife, and introduce a small Volkmann's spoon. Scrape out everything that can be got out by scraping, and squeeze and press the cavity. When nothing more can be got out, fill the cavity with a long narrow strip of lint dipped in turpentine, poking it through the small hole with a probe. At the end of two days pull out the lint and introduce a drain tube. Pass a needle and thread through the tube on a level with the skin, and then slip over the tube a circular piece of plaster with a hole in the centre and having its margin nicked. Cut the tube short off and tie the ends of the thread over the plaster. The tube is thus rendered immovable. Over it may be placed a little bit of absorbent cotton wadding dipped in an antiseptic lotion, and covered in with a bit of jacquonette. After a few lessons the child's mother or nurse will learn to wash out the cavity with a syringe morning and evening and to apply the dressing, as well as to take out the tube, clean it, and replace it every third day or so. By waiting patiently until the tube is literally pushed out of the cavity, a mere white spot is frequently the only remaining evidence of what has been done. If a depression or dimple remains, it can be afterwards elevated by loosening the cicatrix from the subjacent tissues by a tenotomy knife. (Mr. Mitchell Banks, p. 252.)

TENDON GRAFTING.—Successful Case of.

At the Clinical Society May 24, Mr. Mayo Robson gave the history of a case of successful Tendon-grafting, the patient's forearm and hand having suffered severe injury involving principally the ulnar border. The dorsum of the hand was entirely divested of muscular and tendinous structures, and the palm was extensively lacerated. Wishing to preserve the arm if possible, he took a piece of hanging tendon from the front of the hand, four inches and a half in length and stitched it to the extensor muscles and to remaining fragment of the extensor tendon. The wound was kept aseptic and no sloughing took place. The man now had good movement, and was able to return to his work as a weaver. The hand could be pronated and supinated, and he could move the thumb and index finger. He had taken a good length of tendon, and had secured it by a single suture at each end. He believed it was the first successful case of tendon-grafting, and the good result he attributed to the use of antiseptics, to taking a sufficient length of tendon, to using a single suture only at each end, and to the immediate transference of the tendon, and to the non-use of drainage-tubes. (Lancet, June 1, p. 1085.)

TUBERCLE OF THE BREAST.—Case of.

At the Pathological Society, on May 21st, 1889, Mr. Samuel G. Shattock gave details of a case of Tubercular Abscess of the Breast

occurring in a young woman of twenty-one, admitted into St. Thomas's Hospital under Mr. Mackellar on May 19th, 1888. Her parents were alive and in good health, and there was no history of tubercle in the family. The disease appeared six years previously as a lump in the left breast about the size of a hazel nut. A section of the breast with the contained abscess was removed by Mr. Mackellar, several diseased axillary glands being also excised. Microscopic sections of the wall of the abscess and of the caseating glands demonstrated the tubercular nature of the disease. The patient was at present well. Sir Astley Cooper, in his work on "The Anatomy and Diseases of the Breast" (1845), had described under the term "scrofulous swelling" cases that most clearly came under the category of tubercle; and it was a curious fact that the subject had since been so entirely overlooked by British observers. The only case the author had been able to find in modern English literature was recorded by Dr. Hebb in the last volume of the Pathological Society's Transactions. If the dictum were accepted as fairly near the truth, that every chronic abscess, wheresoever occurring, was tubercular, it must be admitted that tubercular disease of the breast, in one of its forms at least, could not be so remarkably rare; and not only was it certain that this would prove to be the case, but that some of the cases which passed as chronic mastitis, accompanied with suppuration, would have to be placed in the same category. Tubercle of the breast was, indeed, a condition well recognised by continental observers, and had a fairly extensive bibliography. The author had collected accounts from about twenty sources. In the cow tubercle of the udder was not only well known, but its hygienic importance was fully appreciated by continental observers; its histology was fully described and figured in Virchow's *Archiv*, 1877. The milk from such cows contained bacilli, and was a ready means of infection, as was shown by experiments performed on animals. Hamilton made the remark, in his recent text-book of Pathology, that it was a matter for future determination how far the ingestion of such milk was not the cause of the mesenteric tabes so common in children. Whether the milk of a tuberculous cow whose udder was not tuberculous was infective was a question not yet satisfactorily settled. In this country Professor Crookshank had quite lately studied the subject of tubercular mastitis in the cow, and recorded his results in a form which would shortly be officially made public. In the cow mammary tubercle might be primary or secondary, and the same was true of the human subject. In Dr. Hebb's case, the patient, a woman of thirty-nine, had had eight children, five of whom had died of tuberculosis, and she herself was under treatment for many years with hæmoptysis. What was true in regard to infection in the case of the cow must be extended to the human subject. An instance was cited in which a tubercular nurse, whose milk contained bacilli, took a

child born of parents who were quite well; the infant died very rapidly of tubercular meningitis. As to whether the milk of a tuberculous person in whom the breast was not diseased was infective, the same unsettled question arose as in the case of the bovine disease. With respect to the histology, the author pointed out that in the history of tuberculosis Laennec's definition was superseded by Virchow's; but he submitted that Virchow's no longer covered all the requirements of the case. Tuberculosis might exist without the presence of anatomical tubercle; and this was true even if under the latter was included the simplest tubercle system, which was practically a microscopic object. The histology of tuberculosis might be confined to a diffuse inflammation, accompanied by the presence of giant cells, the bacilli being of course present in the inflamed area. In the case under consideration this was almost true, and it held in other instances, as in lupus; though this was not of course the histology in all examples of mammary tubercle. The figures in Virchow's *Archiv* showed abundance of giant cells, but no proper tubercle systems. That which was alone essential to constitute tuberculosis was, as Koch observed, the presence of the tubercle bacillus. [A further account of Mr. Mackellar's case, with some references to previous writings on Tubercle of the Breast, will be found in the *Lancet*, June 1st, p. 1082.] (Lancet, May 25, p. 1033.)

AFFECTIONS OF THE SKIN, ETC.

ACNE FRONTALIS SEU NECROTICA (Boeck).

This is the name that Boeck, of Christiania (*Archiv. f. Derm. u. Syph.*, 1889), prefers to Acne varioliformis (Hebra), Acne pilaris (Bazin), and Acne atrophica (Bulkley). This form of acne, though well known to dermatologists, is little, if at all, recognized by physicians in general, and is one of the rare forms of skin disease. The case related in this article was remarkable for occurring not only on the face, but also on the breast, neck, and back. The lesions on the back were specially well pronounced in character. All the lesions begin as very small papules originating in the swelling of a hair follicle and its immediate neighbourhood. These papules slowly enlarge, and when they reach the size of a hemp-seed and cause a certain amount of tension in the skin, a lot of very small hemorrhagic points will appear in their centres, forming a small, delicately marked, violet-red spot. If the papule grows large enough to include several follicles, it will form a turgid, raised, quite firm and flat patch, of a punctate appearance and a bright violet colour. After a time these lesions begin to sink in in the middle, and take on more of a brownish-violet colour. These changes are continuous, till at last the whole patch sinks in, and lies in the skin as a sharply defined, circular, hard

plane, of brownish-violet colour, slowly changing to brown, presenting the appearance of a mummified piece of skin. The sensibility of the patch is preserved. If the surface is removed by emollients, a granulating ulcer is left behind. If left alone, the mummified skin will fall off itself, leaving a scar. The larger the lesion, the deeper this process of necrosis goes. The disease may return in the scars, and is prone to relapse. It is a sort of dry gangrene of the skin whose etiology is unknown. (New York Medical Journal, Aug. 17, p. 192.)

ACNE VULGARIS.—Naphthol or Resorcin Pastes.

The treatment recommended by Dr. Isaac, of Berlin (*British Journal of Dermatology*), consists chiefly in producing sufficiently intense peeling of the skin to remove all obstructions from the sebaceous glands, and eventually also to reduce excessive vascularisation of the skin. This is most effectually achieved by the application of naphthol or resorcin pastes as in the following formulæ:—Naphthol 1 part, sulphur præcip. 5 parts, sapon. virid. and vaseline āā 2 parts. M. f. pasta. To remain on for half to one hour and to be repeated daily until the skin peels thoroughly, which usually requires a few days. In case of a too intense reaction, a 2 per cent. salicylic acid paste or powder readily gives relief. Another formula warmly recommended is the following: ℞. Pulv. cret. alb. 5 parts, β naphthol, camphor and vaselin flav. āā 10 parts, sapon. virid. 15 parts, sulphur præcip. 50 parts. M. f. pasta. This preparation should not be applied for longer than a quarter of an hour. Resorcin was used in about 50 cases with most satisfactory results. It is also applied as a soft paste. ℞. Resorcin, zinc. oxyd., amyl āā 5 parts, vaselin flav. 10 parts. M. f. pasta mollis. Isaac has found it advisable to commence with a less concentrated (10 per cent.) ointment, gradually increasing the strength if necessary. It is important to bear in mind that acne is often merely a symptom of a disturbance of the inner organs, as it is more than likely that the sebaceous glands which become inflamed by the exit of superfluous quantities of bromine and iodine also serve for the removal of other irritating bodies from the organism. In this way the effect of cheese, beer, and coffee on the skin is satisfactorily explained, and the necessity of avoiding such irritants sufficiently proved. (Medical Chronicle, Sept. p. 493.)

ACUTE INFLAMMATORY SKIN DISEASES.—Picric Acid in.

Dr. G. Calvelli (*Gaz. degli Ospitali*, Jan. 27, 1889), speaks highly of the effect of picric acid in inflammatory conditions of the skin. He paints the affected surface from five to ten times a day with a saturated watery solution (one gramme and a half of picric acid to 250 of water). He found this method (combined with hypodermic injections of quinine) most successful in erysipelas, even when the temperature was very high and the general symptoms severe; tension was speedily relieved, giving place to painless œdema in

from twelve to twenty-four hours. In several cases of the migratory form of the disease, this effect was produced unfailingly on the application of the picric acid to each fresh point of attack. In a case of lymphangitis of the leg and thigh associated with gouty necrosis of the toes, the redness and pain disappeared after one application. In many cases of eczema rubrum and erythema, immediate relief of tensive pain, and speedy cure were obtained by the same plan. Dr. Calvelli believes that the picric acid acts in the first place as a protective varnish, and also as an astringent of the vessels of the rete Malpighii. That the acid is absorbed by the skin he considers to be proved by the fact that in certain cases in which the quinine injections had caused suppuration, the little abscesses were found to contain pus of an intensely yellow colour. (British Medical Journal, March 23, p. 678.)

ALOPECIA AREATA.—Lassar's Antiparasitic Treatment.

Lassar, of Berlin, in 1882 published, in connection with Bishop, an account of some experiments tending to show that alopecia prematura was contagious, and could be cured by antiparasitics. In this article (*Therap. Monatsheft*, 1888, No. 12) he still insists upon the contagiousness of ordinary baldness and its spread through the agency of barbers, and the employment by several persons of one comb in common. Even though as yet no definite parasite has been found in alopecia, Lassar believes that there is one and that it will be found in time. He does not believe that alopecia areata is a neurosis, though he allows the possibility of it in a few cases, but does believe that most cases are from contagion. In the past few years he has met with many hundreds (?) of cases of alopecia areata, many of which have been in relatives, patrons of the same barber-shop, school-mates, or possessors of dogs or cats having similar bald spots. In the belief of the parasitic origin of alopecia, our author has treated more than a thousand cases by means of an antiparasitic plan of treatment, and with marked success. His method is the following: For six to eight weeks the hair is washed with a soap rich in tar (Berger's), the suds being rubbed well in for ten minutes each day. Then the suds are washed out with warm, followed by cold, water, the scalp and hair dried, and the former anointed with ℞. Sol. hydrarg. bichlor. (one third of one-per-cent. strength), glycerin, and cologne water, equal parts; then rubbed dry with absolute alcohol containing one half per cent. of naphthol, and then anointed with ℞. Salicylic acid, ʒ ss.; tincture of benzoin, gr. xlv; neat's foot oil, ʒ iij. M. After six to eight weeks the process is to be less often repeated. In obstinate cases the sublimate solution should be used many times a day. Or this salve may be used: ℞. Carbolic acid, 15 grains; sublimed sulphur, 65 grains; horse-neck fat, to ʒ ij. M. Another good stimulant is oil of turpentine, either with equal parts of an indifferent oil or with dilute alcohol. Another is pilocarpine hydrochloride, 30 grains; vaseline,

5 drachms; lanolin, 2 ounces; oil of lavender, 25 drops. M. Tar is good; and as a final formula we have: ℞. Pilocarpin. hydrochlor., 30 grains; quinin. hydrochlor., 1 drachm; sulph. præcipitat., 2½ drachms; balsam. peruv., 5 drachms: medul. bovin., ad ℥iij. M. (New York Med. Journal, Aug. 17, p. 192.)

ALOPECIA (PREMATURA) FURFURACEA.—Treatment.

Dr. Oscar Lassar has contributed to the *Therapeutische Monatshefte* an interesting paper on the nature and treatment of alopecia (præmatura) furfuracea. This, the commonest form of baldness, is, according to the author, extremely contagious, and can be experimentally communicated from man to the lower animals, while every day it is unconsciously being spread widely among the general population. No specific organism has as yet been isolated, but a number of cases is given to prove the contagious nature of the disease. The following treatment is recommended as being efficacious in most cases:—The hair is washed daily with tar or other soap for 10 or 15 minutes, after which the soap is carefully removed with abundance of water. It is then rubbed with the following lotions: (1) hydrargyri perchloridum (½ per cent. sol.) 150 parts, glycerine and eau-de-cologne of each 50 parts; (2) β-naphthol 1 part, absolute alcohol 200 parts. After careful drying, the following pomade is to be used: acid salicylic 2 parts, tincture of benzoin 3 parts, olive oil to 100 parts. The cure may take six weeks or longer, and careful prophylaxis with regard to brushes and combs must be carried out. (British Medical Journal, Aug. 3, p. 255.)

CANCEROUS ULCERS.—Method of Covering with Healthy Skin.

Kraske (*Münchener Med. Wochenschrift*, 1889) calls attention to the fact that if a cancerous ulcer (*cancer apertus*) can be healed or transformed into a *cancer occultus*, even though no attempt is made to remove it, many of the distressing accompaniments of the disease will be removed. To accomplish this, he removes the prominent masses and ulcerated portions as much as possible, then forms two flaps from the adjacent healthy skin and unites them over the wound. If the operation is performed under strict antiseptic precautions primary union is the rule. This plan might be adopted with advantage in cases of cancer of the vagina and external genitals, where the redundancy of the tissues favours the formation of large flaps. (American Journal, August, p. 217.)

CHAPPED HANDS.—A Salve for.

The *Revue de Thér. Med. Chir.*, June 1, 1889, gives the following salve, which, it says, is a most valuable toilet article. It keeps the hands white and smooth, and quickly remedies all redness and roughness of the skin:—Lanolin, ℥iijss; liquid paraffin, ℥ijss; vaniline, grs. ij; attar of roses, gt. j. M. The salve should be applied morning and evening. (Medical News, July 27, p. 99.)

DESTRUCTIVE FOLLICULITIS.—Baldness resulting from.

At the meeting of the Medico-Chirurgical Society of Edinburgh, on June 5th, 1889, Dr. Allan Jamieson showed a man, aged 32, suffering from a peculiar form of baldness, evidently the result of a folliculitis extending from a common centre. This was the second case of the kind he had seen, the first being that of a little girl whom he had also shown to the society. The present case, when five years old, suffered from a pustular affection of the head. Since then he had been subjected to repeated attacks of inflammation of the individual follicles, followed by the loss of hair on the parts affected. On the back of the neck the same condition had arisen, and had gradually extended, leaving a part bare, and with a cicatricial appearance. Under the use of ointments of sulphur and ammoniated mercury the condition had become quiescent, and no more hairs had fallen out. This condition had been drawn attention to by Quincke, who had described it as a *destructive folliculitis*. The same affection was not uncommon on the cheeks, causing a form of sycosis. There was reason to believe that there was a still slighter form in which there was almost no pustulation, and which had been confused with alopecia areata. Apparently anti-parasiticide remedies did most good. The girl got well under the same ointments as the man was using. There was nothing specific about it. Quincke had described a microbe which, when cultivated and rubbed into the skin of a rat, had produced baldness of the same character. (Edinburgh Medical Journal, Oct. 1, p. 363.)

ECZEMA.—Dr. Unna's Treatment (*Monats. fur Dermatologie*).

In a paper on the Diagnosis, Etiology, and Treatment of Eczema, Dr. Unna says that even before the experimental cultivation of bacilli exact clinical observation had distinguished a number of entirely different types of eczema, and he thinks that each different type will be found to require a different mode of treatment. The type most frequently seen in Hamburg is seborrhœic eczema, and the parasite causing it is the same which in the first instance produces pityriasis capitis. Those persons who suffer from seborrhœic eczema of the head, including those affected with pityriasis capitis, are apt to suffer from the same kind of eczema on other parts of the skin. Dr. Unna has repeatedly pointed out that we possess a series of valuable remedies for the treatment of seborrhœic eczema in all its forms—viz., sulphur, resorcin, chrysarobin, and pyrogallol. Of these remedies resorcin is the best, as being the least likely to produce local or general ill effects. It may also be used in an alcoholic or watery solution or in the form of ointment, paste, soap, or powder. Dr. Unna's favourite formula is a solution of three drachms of finely powdered resorcin with an equal quantity of glycerine, in six ounces of spirits of wine, diluted with four times the quantity of water or camomile tea. A thin layer of cotton wool well moistened with the solution is applied, covered with some waterproof material, and

fastened by a bandage. These applications are particularly useful when the treatment is prolonged, or when it is carried out by night. They are, of course, impossible in general eczema of adults, but not in that of infants. Dr. Unna describes an especially important effect following the application of resorcin,—viz., a swelling of the epidermis, by which all painful fissures are healed in a single night. In order to ensure healing, he advises that the skin should be anointed after the removal of the bandage, and that washing with soap should be avoided. A few people suffer from a resorcin idiosyncrasy which necessitates the immediate cessation of this treatment, and the application of powder to the affected parts. This idiosyncrasy is, however, very rare, as he has only met with it ten times in five years' observation, during which time he has seen 2,000 cases. He remarks that his treatment is not adapted to those cases of long-existing eczema, in which strongly-infiltrated or thickly-indurated patches occur. (Lancet, Aug. 17, p. 328.)

Eczema.—The Local Treatment of.

The great desideratum in the cure of eczema is the appropriate external treatment. I have been in the habit of prescribing an ointment which in most cases pretty nearly approaches the character of a specific:—℞. Bismuthi subnitratis ʒiv; zinci oxidi ʒj; acidi carbolici liquidi ʒss; vaselini albi ℥ij. Ft. ung.

Sometimes I vary the prescription into this form:—℞. Bismuthi subnitratis ʒij; zinci oxidi ʒss; glycerine (Price's) ʒjss; acidi carbolici liquidi ♏xx; vaselini albi ʒvj. Ft. ung. The latter ointment mixes into a beautiful enamel-like cream, which is cooling, and acts as a balm to the irritable skin.

When constant tingling and irritation disturb the patient's rest at night, I have found this lotion invaluable:—℞. Bismuthi subnitratis ʒj; glycerine (Price's) ʒiv; acidi carbolici liquidi ♏xij; aq. rosæ ad ℥i. Sig. Shake up and apply with a camel's hair pencil.

During the day, when business has to be attended to, and the ointment cannot be applied, a powder will be found useful: ℞. Cimolite, bismuthi subnitratis, zinci oxidi, āā partes æquales. Fiat pulv.

In more chronic cases the famous *Unguentum Metallorum* still holds its own. It consists of Unguenti zinci; unguenti plumbi acetatis; unguenti hydrargyri nitratis, āā partes æquales. Misce. This ointment I occasionally vary by substituting white precipitate for the nitrate of mercury ointment.

The patient must neither wash with, nor yet without, soap, nor with the usual adjuncts of bran steeped in hot water, oatmeal, milk and water, butter-milk, whey, sour milk, or rain water, or any other of the usual washes; all of these are mistakes that seriously hamper and delay curative treatment. Persistent washing predisposes to eczema by drying the skin, and depriving it of the unctuous secretions which impart to it suppleness and softness. (Dr. D. Mackintosh, C.M., London, Practitioner, July, p. 7.)

Eczema (Squamous) of the Back of the Hand.

This disease is believed by Unna (*Montshft. f. p. Derm.* 1889) to be a seborrhœal form of eczema, in common with those forms of eczema known previously as "baker's itch," "bricklayer's itch," and the like. In most cases, he says, seborrhœal affection of other regions will be present at the same time—pityriasis capitis, an oily condition of the face, an intertriginous eczema, and so on. In the way of treatment it is recommended to cover the affected part with a thin layer of cotton batting soaked in the following solution: Resorcin and glycerine, each 10 parts; dilute alcohol, 180 parts. This is to be diluted with equal parts of water when used, and is to be applied in the evening. Over it is to be bound a large piece of gutta-percha tissue, so as to envelop the whole hand and keep the batting moist all night. In the morning a zinc-oxide paste, either with or without sulphur, tar, or resorcin, is to be applied, and to be renewed once or twice during the day. For washing the hands, the patient should use only warm water and avoid fatty soap. While caring for the eczema, the seborrhœal affection of other parts must be treated. (N. Y. Medical Journal, Aug. 3, p. 136.)

LEUKOPLAKIA BUCCALIS.—Use of Balsam of Peru in.

Rosenberg in the *Journal of Cut. and Genito-Urin. Diseases*, bases an article dealing with this subject on the observation of thirteen cases, mostly observed in Lassar's clinique in Berlin. The treatment consists in painting the affected parts with the pure balsam of Peru. The painful and fissured spots are painted by means of a soft brush, while on the insensible spots it is well to make frictions by means of a hard pencil. These paintings and frictions should be made from one to three times a day by the patient himself. After each application the balsam should be retained in the mouth at least from three to five minutes. The applications always provoke a slight burning sensation and a profuse salivation. It is necessary, however, that the patient resist for several minutes the desire to eject the saliva. Two other indispensable conditions to success are the employment of a medicament of good quality (the balsam of Peru being often adulterated), and sufficient perseverance in the treatment to suit the exigencies of each case. The pains often disappear within a few days; a cure is sometimes effected within a few weeks. In other cases the treatment must be much more prolonged. The author, himself the subject of the disease, was obliged to make use of the application for fifteen months (once a day) in order to definitely cure two spots of leukoplakia, one of which was situated upon the tongue, the other on the mucous membrane of the buccal cavity inside the cheek. From nine cases so treated, Dr. Rosenberg obtained a cure in eight, and until the present time without an instance of recurrence. The ninth case was only ameliorated. (Practitioner, June, p. 457.)

LUPUS VULGARIS.—Treatment.

Here, as in other cases, the theory of the disease is certain to have some influence on its treatment. So long as any disease, cancer, for instance, is regarded simply as the local expression of a constitutional diathesis, so long will the local treatment be carried out in a half-hearted manner. I do not forget the benefits sometimes obtained from the use of ethylate of sodium, salicylic acid, or the solid nitrate of silver: I only wish to remind you that a considerable number of cases are not cured by these, nor even by scraping with Volkmann's spoon. We all of us must have had cases in which repeated attacks with the scraper and the actual cautery have been needed before the lupus was eventually cured, and we have had to deplore the wretched deformity arising. With me it has become a question whether we ought not in a recurring lupus to make a clean excision of the skin affected. I have at present under observation two cases; each of them has some half-dozen times had the lupus erased and subsequently cauterised with Paquelin's instrument; in each the disease is not quite put an end to, and in addition to the unsightly scar-tissue on the face there is considerable eversion of the lower eyelid. In similar cases in future, whether on nose or cheek, if thorough erasion once fails, I shall excise the diseased tissue, and endeavour to repair the breach by plastic operation before the gap has healed over, hoping thus to cure the lupus and to prevent some of the deformity which is so apt to occur. In four cases of lupus not affecting the face I have excised the patch with a healthy margin of skin all round, taking care to remove not only the true skin, but practically all the subcutaneous fatty layer, and in neither case has there been any return. (Mr. H. Gilbert Barling, p. 366.)

NEW LANOLIN OINTMENTS.

Dr. Stern, of Mannheim, has found to be useful three preparations with lanolin, which he names (*Therap. Monatshft.*, February, 1889): (1) *Sapolanolin;* (2) *Lanolin wax-paste;* and (3) *Fluid lanolin injection.* The first is a mixture, usually, of two parts of green soap and two parts and a half of lanolin. With this he incorporates all the ordinary medicaments excepting salicylic acid. He has found it specially valuable in the treatment of infiltrated eczema, parasitic diseases, and seborrhœa with thick crusts. With the addition of 10 per cent. of white precipitate it renders excellent service in psoriasis capitis, usually clearing up the disease in from three to eight days' time, and needing only the application of an indifferent ointment to complete the cure. It never discolours the hair. The second preparation is exceedingly useful for an adhesive dressing, and is composed of forty parts each of yellow wax and lanolin and twenty parts of olive oil, melted together and shaken while cooling. It is of a bright-yellow colour, and of the thickness of the wax used by the hair-dresser. It can be spread upon the skin, where it sticks.

With this can be incorporated nearly all sorts of medicaments, only, when tar is added, a little more wax must be used. It is very useful in eczema of the face when oxide of zinc or boric acid is added to it. In squamous and vesicular eczema the following leaves little to be desired: Salicylic acid, in fine powder, 3 parts; olive oil, 17 parts; yellow wax and lanolin, each 40 parts. For the third preparation the basis is formed by lanolin, 25 parts; oil of almonds, 75 parts. To this can be added various medicaments, for instance: ℞. Zinc sulphate, 0·5 per cent.; water, 4·5 per cent.; lanolin, 20 per cent.; and oil of almonds, 75 per cent. (N. Y. Med. Journal, Aug. 8, p. 135.)

NEW REMEDIES IN SKIN DISEASES.

Schwimmer has lately, in the *Wiener medizinische Wochenschrift*, published the results he has obtained in certain skin diseases by the use of salol, oxynaphthoic acid, salicylate of mercury, and anthrarobin. Salol mixed with starch in the proportion of two to one he finds a very effective remedy in all forms of venereal sores and in the buboes resulting from them. Iodoform seems to have a more rapid action, but salol has the superiority of possessing no smell. The drug also appears useful in conditions of the mucous membrane of the bladder, when given internally in doses of forty-five to ninety grains distributed through the day. Oxynaphthoic acid did not give good results in venereal cases, acting as an irritant. In scabies, however, it did not irritate, and was an effective remedy. It may be mixed with chalk and soft soap, each 10 per cent., with lard. It acted well also in the secondary eczema of scabies, and allayed itching in prurigo. Salicylate of mercury possesses no superiority over the ordinary remedies used in gonorrhœa and venereal sores. Given internally in doses of one and a half to two grains, it was an effective antisyphilitic drug, although apt to cause irritation of the intestine and stomatitis. Anthrarobin was found to have no beneficial effect in psoriasis, but in herpes tonsurans, eczema marginatum, and pityriasis versicolor it acted well, being mixed with collodion in the strength of one in ten. (British Medical Journal, June 29, p. 1475.)

PRECANCEROUS CONDITIONS OF THE TONGUE.

At the Harveian Society on March 14, 1889, Mr. Butlin, in his paper on this subject, dealt chiefly with three points: 1. The proportion of cases of cancer of the tongue in which the disease was preceded by a well recognised cancerous condition. 2. The relative importance of various precancerous conditions. 3. The question of the early and free removal of some precancerous conditions. In a certain number of cases which had been under the care of the author, cancer of the tongue had been preceded by a precancerous condition in at least 70 per cent. Warty growths appeared to be the most dangerous of the conditions which actually and immediately preceded cancer, and these warty growths were shown to be more frequent than was generally believed. The question was raised

whether it would not be right in cases of leucoma and chronic superficial glossitis, in which warts and warty growths form on the surface of the tongue, to remove the whole of the diseased area of the tongue, or certainly the fore part of the organ, instead of merely removing the warty growth and an area of the surrounding tissue. Two cases were related in which simple warty growths formed on leucomatous tongues and were removed, and in which, at a later period, cancer developed, but not in the seat of the removal of the warts. The use of liquor arsenicalis internally was recommended in all cases of chronic affection of the surface of the tongue in which the disease was associated with various forms of chronic affection of the general integument (non-specific). Several cases were related to show the advantage of the removal of early cancerous affections of the tongue. (British Med. Journal, April 6, p. 777.)

PRURITUS AND IRRITABLE SKIN.—A Method of Treating.

Pruritus, whether occurring as an accompaniment of some other affection, or manifesting itself as a symptom without tangible cause, not infrequently taxes all a practitioner's resources for its relief. In three cases lately under my care, I have used, with good results, a cone composed of cacao butter impregnated with 2 per cent. of cocaine. This is rubbed over the part affected. The warmth of the skin melts off a layer of the cacao butter, which forms a soothing emollient shield over the irritating patch. The remedy has been put up in the form of cones, enclosed in boxwood cases, with screw-tops, something after the manner of menthol cones. (Messrs. Reynolds and Branson, of Leeds, have efficiently carried out my wishes, and have prepared the remedy in a very convenient and portable, as well as a cheap and elegant, form.) These can be carried about by the patient, ready at any moment for self-application. The box-wood being a non-conductor of heat, prevents the heat of the body from melting the cone whilst it is carried in the patient's pocket. In irritable affections of the skin, in cases of insect bite, in pruritus and various forms of hyperæsthesia, the remedy is worthy of trial, and its use has distinct advantages over the more usual applications. Although containing cocaine, I regard the manner in which the cacao butter is spread over the affected part as having a share in the curative process. It is a method of topical appliation capable of further development. (Mr. Norman Porritt, Brit. Med. Jour. July 27.)

PRURITUS.—Its Treatment by Menthol.

Dr. Saalfeld (*Deutsche Med. Wochenschrift*) gives the following formulæ for the use of menthol in pruritic affections: (1) Menthol, 22 to 37 grains; spir. vini rectificati, 1½ oz.; M. ft. lotio.—(2) Menthol, 37 grains; olei olivæ, 2—3 dr.; lanolin, 1½ oz. M. ft. unguent.—(3) Menthol, 48 grains; balsam Peruv., 96 grains; unguent. zinci benzol., lanolin pur āā ad. 2 oz. M. ft. unguent for use in scabies. (Medical Chronicle, June, p. 222.)

PSORIASIS.—Iodide of Potassium in.

Haslund's method of treating psoriasis by large doses of iodide of potassium has been tried in Italy by Dr. Barduzzi in three cases. In each of these cases the disease had lasted more than twenty years, and affected nearly the whole body. Arsenious acid, arsenite of potash, sulphate of copper, chrysophanic acid, etc., had been given internally, and oil of juniper, oil of tar, pyrogallic acid, resorcin, chrysarobin, naphthol β, etc., had been used externally, with more or less temporary benefit. Dr. Barduzzi began by giving one gramme of iodide of potassium a day, the amount being increased by one gramme every five days, till as much as seven grammes was given in the twenty-four hours. In the first case there was very great improvement, which had lasted eighteen months; in the second there had for seven months been no sign of fresh eruption, and the patient was made to take one gramme of the iodide daily for twelve days each month, solely as a measure of prevention; in the third improvement began to show itself in a week, in forty-two days the hyperplasia had completely disappeared, and the cure was still maintained five months later. It should be mentioned that in the second case applications of chrysarobin, and in the third of traumaticine and resorcin, together with alkaline baths, were used towards the end of the course of iodide. Dr. Paolo Luciani has recently recorded a case in which he cured inveterate psoriasis by Haslund's method. The patient was a man, aged 53, who had suffered from the disease for thirty-three years. The whole of the body was affected, and treatment of various kinds had been tried in vain. Dr. Luciani began the iodide of potassium treatment on November 9th, giving at first three grammes in one hundred grammes of water in the day, and gradually increasing the amount till, on November 18th, it had reached fifteen grammes a day. This was continued till November 30th, when the patient was discharged. During the course of treatment, which lasted twenty days, no sign of iodism was noticed; the appetite and digestion improved, and no albumen was found in the urine. The heart-beats rose to 100, a fact which had also been observed by Haslund. The beneficial effects of the drug first showed themselves a week after the beginning of the treatment. Whilst the patient was taking the iodide, applications of creoline ($1\frac{1}{2}$ to 5 parts in 100 of vaseline) were made morning and evening to the trunk, the neck, and the scalp, and of ichthyol (50 parts in 100 of vaseline) to the limbs. The creoline seemed to have decidedly more effect than the ichthyol. After the twenty days during which the treatment was continued there was a marked improvement in the patient's condition; "the eruption, both recent and old, had almost disappeared; the raised and adherent patches were flattened down, and in their place only a blackish stain was seen." The improvement continued after the patient left the hospital, and Dr. Luciani

says that he had seen him a few days before the date of his report (March 27th), when "no trace remained on his body of the psoriasis which had troubled him for thirty-three years." As a measure of precaution, he was directed to take iodide of potassium for another fortnight. (British Med. Journal, May 18, p. 1142.)

RINGWORM.—Butte, Quinquaud, Besnier, and Vidal on. At the International Congress of Dermatology and Syphilography, held in Paris, August, 1889, Dr. Butte, of Paris, related the method employed by Quinquaud and himself in the treatment of tinea tonsurans. It consisted simply in the application of a one per cent. ointment of protochloride of iodine in lanoline. Every second day the head is sprayed with warm water, and then it is dried and rubbed for some time with this ointment. It is possible by this means to cure ringworm of the scalp within a few months without resorting to epilation. Dr. Quinquaud, of Paris, said that the method just referred to had produced excellent results in his hands. Another plan was to cut the hair very short, shampoo the head every morning, and then apply a lotion of biniodide of mercury, 3 grains; bichloride of mercury, 15 grains; alcohol, 10 drachms; distilled water, 8 ounces. After that the affected parts are scraped with a special form of curette. At the end of a week, during which time this process may have been repeated once or twice, the hairs are pulled out. Epilation is accomplished much more easily now, since the previous treatment has made the hairs much less brittle. The scraping is repeated every week or two, and in the intervals a plaster of the biniodide and bichloride of mercury is applied. A cure is thus obtained in three or four months. The children usually bear the scraping very well. Dr. Besnier, of Paris, asked whether such vigorous treatment did not occasion a pretty active dermatitis. He had seen several cases of partial alopecia following a dermatitis caused by too active treatment of ringworm of the scalp. His plan was to cut the hair close, epilate for some distance around the seat of the disease, and then apply borated vaseline. The head was washed every morning with bran-water before the application of the ointment. Dr. Vidal, of Paris, said that it was an easy matter to destroy the tricophyton when seated on the non-hairy parts. Here it was superficial, and anything that would remove the epidermis would remove also the parasite. But when the tricophyton had penetrated into the hair-follicles the matter was very different. Epilation was a delusion, for if the hair was diseased it always broke off, and only the healthy hairs could be extracted. He had made some experiments to determine the nature of this parasite, and had found that it was aërobic. Therefore, if it could be deprived of oxygen it would perish. This could be accomplished by simply covering the part with vaseline. He used an ointment of iodine in vaseline (1–100), applied every day or every other day, and covered

it with gutta-percha tissue, and had obtained very good results. A cure was effected in this way much more speedily than when epilation was resorted to. (N.Y. Medical Record, Sept. 14, p. 301.)

SCABIES.—Its Treatment by Petroleum.

Dr. Constantine Paul sends the following formula for "petroleum soap" to *L'Abeille Médical*, April 30, 1889:—℞. Soap, ℥iij; petroleum, ℥f.jss; alcohol, ℥f.jss; wax, ℥j. M. Two or three applications a day will result in complete recovery in one or two days. The preparation is also said to be of value in ringworm. (New York Medical News, June 8, p. 629.)

SYCOSIS.—Treatment.

Dr. Jackson (*Journ. of Cut. and Genito-Urin. Dis.*), as the result of his experience in the treatment of sycosis, gives the following advice: In acute cases where there is much pustulation, epilate or "curette," and apply boric-acid ointment, or Lassar's paste with salicylic acid. Give one-tenth of a grain of calcium sulphide in fresh tablet triturates every one or two hours. If an acute outbreak of pustules occurs under it, stop it until a subsidence of the eruption takes place, and then begin again. In subacute cases, where there is not so much pustulation but more redness and the disease is more patchy, epilate or curette and use Bronson's ointment (hydrarg. ammon. ℈j; hydrarg. chlor. mitis ℈ij; vaselin. ℥j.), or one of sulphur, tar or other mild stimulant. Or use soap frictions, followed by protective ointments. In chronic cases, epilate or curette, or apply a solution of caustic potash carefully to the diseased parts. Locally, employ strong ointments or solutions of tar, provided caustic potash has not been used. If caustic potash has been used, then apply a simple soothing dressing. The use of tar in alcohol, as proposed by Pick, of Prague, has of late given brilliant results in his hands in some cases of chronic eczema. Soap frictions are also valuable at this time. As chronic and subacute cases may take on acute forms under stimulating treatment, we must be prepared at any moment to apply more soothing methods of cure according to indication. (Practitioner, June, p. 460.)

SWEATING FEET.—Use of Chromic Acid for.

During the year 1888 (*Wiener Med. Blätter*) more than 18,000 Prussian soldiers were treated with a solution of chromic acid, for sweating of the feet. A 5 per cent. solution was applied by means of a brush. The application was made after the feet had been washed and thoroughly dried, and the feet were left uncovered until the acid completely combined with the skin. The effect of the treatment was that the skin became drier, harder, and less tender. The wet, red skin became dry and smooth and the unpleasant odour of the decomposing sweat disappeared. Many cases were cured or much improved by one application and most of them by two or three. Where a second application had to be made it was made

after an interval of a week to a fortnight, when the hardened epidermis had peeled off. The effect of the second painting lasted longer than the first. A very gratifying result to the military authorities was the great improvement in the marching of the soldiers who had undergone the treatment. A 10 per cent. solution did not give better results than the 5 per cent. It appears that 42 per cent. were healed, 50 per cent. improved, and only 8 per cent. unrelieved. In ·75 per cent. of the cases only, and generally after the use of more concentrated solutions than 5 per cent. were vesication, eczema, and wounds of the skin caused by the paint. The following conclusions were drawn respecting the treatment:—(1) Chromic acid is the quickest and best remedy, or, at any rate, it is as good as salicylic acid preparations for sweaty feet. (2) The remedy is easily applied; it is cheap and clean. (3) It does no harm when the acid is pure and a solution of the right strength used. The irritability of the skin may be first tested by weaker solutions before the ordinary solution is used. (4) The application should be made by the doctor himself. (5) Wounds and ulcers on the feet must first be healed before the chromic acid is applied. (6) The best time to paint the feet, which have been washed and thoroughly dried, is about bedtime. As already stated, the second application is made a week or a fortnight after the first. (Medical Chronicle, Sept. p. 494.)

XANTHOMA MULTIPLEX Planum, Tuberosum, Molluscifórm.

Dr. Lehzen and Dr. Knauss, of Würzburg (*Archiv f. path. Anat. u. Phys.*, 1889), give us a study of this interesting disease as found in two sisters—one eleven and the other nine years old. The parents were healthy, and there was no history of any skin diseases in the family. There were two other children in the family that were free of skin troubles. The older girl was always delicate, having had an attack of jaundice shortly after birth. In the third year of life she has "festers" over her whole body for a long time. In April, 1887, she passed through measles, and entered the hospital in November 1887. She came into the hospital on account of the xanthoma, which began in her fourth year, on both eyelids, as yellow, slightly raised papules. In about a year afterwards the spots appeared on both knees and hands; later on the elbows, the gluteal region, and the left heel. The right heel was attacked about one year later. All the spots increased in size. Subjective symptoms were absent, except a slight amount of itching at the time of the appearance of new lesions. The only other abnormal symptom was insufficiency of the mitral valve. Various tumours were excised under chloroform anæsthesia. The patient died of heart failure about a month after the last operation. At the autopsy the liver was found of a deep bluish-red colour, and with its free edge markedly high. On the valves of the pulmonary artery yellowish, xanthomatous papules

were found, and a great number of these bodies were scattered about the heart and great vessels. The younger sister showed the same skin disease, but of less pronounced grade, and there was no heart trouble. Her trouble began in the third year, after a vesicular or bullous skin affection of uncertain nature. The peculiarity of the first case was the affection of the intima of the blood-vessels; and the practical lesson is that we should examine patients for heart symptoms in order to qualify our prognosis. (N. Y. Medical Journal, Aug. 17, p. 192.)

ZOSTER ATYPICUS GANGRÆNOSUS HYSTERICUS.

At the first Congress of the German Dermatological Society, held in Prague last June, Kaposi exhibited drawings and gave particulars of two cases of this new form of herpes zoster, which he originally described in a recent publication (*Wien. Klin. Woch.*, 1889, No. 10). His first patient, an unmarried woman, 27 years of age, came under observation eight days after the outbreak of the eruption. On both sides of the chest and upper part of the abdomen there were bands and oval patches of green and dark-brown scabs, each group being from about one to three inches long and consisting of elements about the size of a lentil seed. A close examination of the most recent parts of the eruption shows that the necrosis began under the epidermis. When the scabs fell off, deep skin ulcers were disclosed. Near one group of scabs, vesicles, varying in size from a pin's head to a lentil seed, with dark green depressed centres, were noticed, and in different parts of the chest there were papules and vesicles about the size of poppy seeds, mostly arranged in groups. Since the age of twelve the patient had been subject to similar attacks, and for the last seven years she had one yearly. The eruption was not always confined to the same locality, for the extremities and the face had been affected, as well as the chest and abdomen. Scars, some of them keloid-like, marked the site of previous outbreaks. The subject of the second case had a similar eruption. She was a girl of fifteen, and suffered from complete left anæsthesia. According to Kaposi, the grouping of the efflorescences distinguish his form of zoster from Doutrelepont's spontaneous gangrene. (Med. Chronicle, Sept., p. 499).

SYPHILITIC AFFECTIONS.

GONORRHŒA.—Salicylate of Mercury in.

Prof. Schwimmer (*Wien. Med. Wochenschr.*) has met with great success in treating blennorrhagia, both acute and chronic, with injections of salicylate of mercury. He suggests the following formulæ:—1. In *acute blennorrhagia*, ℞. distilled water, ʒiijss; salicylate of mercury, $\frac{1}{6}$ grain. M. Three injections should be made daily, and the treatment continued for two or three days, in about

which time the discharge will cease.—2. In *chronic blennorrhagia* a stronger solution can be used: ℞. Water, ʒiijss; salicylate of mercury, ¾ grain. M. In chronic cases the treatment should extend over a period of six or seven days, and in some stubborn cases even this is not sufficient. The solution has no irritative properties. (Medical News, June 1, p. 603.)

Gonorrhœa.—Antiseptic Treatment of.

Du Castel is an adherent of the gonococcus theory, and recommends antisepsis in the disease in question. After three years' probation he is well satisfied with the results obtained from the local use of resorcin. The greatest effect was produced when the remedy was applied at the beginning of the case or in its later stages, the least when used in the second week. From this Du Castel concludes (*Gaz. des Hôpit.*) that resorcin has no power over the gonococcus at the height of its development. The following are Du Castel's conclusions as to the treatment of acute gonorrhœa:—(1) In some exceptional cases abortive treatment (with argent. nitras.) may be attempted. (2) During the acute stage antiseptic treatment of the urethra is indicated, by preference with resorcin. (3) After subsidence of acute symptoms the balsams, with or without simultaneous resorcin injections, may be used. (4) In obstinate cases, however first treated, any single drug must not be used too long; but, as occasion may require, recourse may be had anew to antiphlogistic remedies. Du Castel does not say what strength of resorcin solution he employs, but Jaffé recommends one of from a half to three per cent. (Edinburgh Med. Journal, Oct., p. 397.)

Gonorrhœa in the Female.—Treatment.

The local treatment should be undertaken by the medical attendant himself. The patient being placed in front of a window, in the dorsal position, with knees flexed and separated so as to expose the vulva, all discharge is to be wiped away by means of pledgets of cotton wool, which are to be at once burnt. If there is any abrasion on the nymphæ, it should be swabbed by means of pledgets of lint dipped in strong carbolic acid; as also should the mucous membrane surrounding the orifices of the vulvo-vaginal gland-ducts, after pressing out and removing any pus that may be lying in the ducts themselves. The urethra should then be pressed systematically from the neck of the bladder to the meatus externus by means of a finger in the vagina. If a drop of pus exudes, the urethra is known to be implicated. The method I adopt under such circumstances is to wrap a film of cotton-wool around a Playfair's uterine probe, and, having dipped it in strong carbolic acid and removed any superfluous moisture, pass it along the urethra. I also administer copaiba by the mouth. If that remedy is ever indicated in the gonorrhœa of women, it is when the urethra is infected, and my own belief is that it is then useful. With

reference to the cervix, my treatment is, having removed all discharge from the canal and scraped any erosions that may be present, to apply strong carbolic acid to the scraped surface by means of a pledget of lint, and to the interior of the cervix by means of Playfair's probe. If there is reason to believe that the infection has reached the interior of the body of the uterus, the probe should be passed its full length, so as to bring the application in contact with the entero-mucous membrane of the body as well as the cervix. There only now remains the vagina to be dealt with. Its surface is too large and too sensitive for the application of strong carbolic acid. I, therefore, adopt the plan, suggested by Schwarz, of swabbing the whole vaginal surface through a speculum, with large pledgets of cotton-wool saturated with solution of corrosive sublimate (1 in 1000). These manipulations take much longer to describe than to carry out. (Dr. C. J. Cullingworth, p. 370.)

VACCINAL SYPHILIS.—*(Journal de Médecine, April,* 1889.*)*

Professor Fournier has recently collected his lectures upon this subject and published them in a little volume. The number of instances cited to demonstrate the danger of vaccination from humanised virus is so great that it is a matter of wonder that so many physicians still practise other than animal vaccination. The epidemics of Cremona, in which forty infants out of forty-six vaccinated were infected with syphilis, and secondarily, a certain number of their mothers and nurses; of Morbihan, in 1866, where forty-five children were infected; and other smaller outbreaks of a similar nature, are mentioned. When syphilis has been inoculated along with vaccine virus, three alternatives may present themselves. Either syphilis is not transmitted, and, fortunately, this is the most frequent result; or the vaccination does not take, but syphilis is produced, and the symptoms and course are identical with those where the syphilitic virus alone is introduced into the body; or, finally, both forms of virus give a positive result, some points of insertion being followed by pure vaccine lesions, while the chancre appears only at the points where the vaccine has failed. Vaccinal syphilis always has an initial lesion, and this point must be remembered, so as not to mistake hereditary syphilis appearing shortly after vaccination for syphilis produced by vaccination. It does not by any means follow that the child from whom the virus is taken must be in an active stage of syphilis in order to transmit the disease in this way. The syphilis may be latent, or the child may even be in course of inoculation with syphilis, as proved by cases seen in epidemics. A healthy child is inoculated, and on the seventh or eighth day serves as vaccinifer, and the virus he furnishes may inoculate syphilis, and this before the chancre has appeared in his own person. A common error is still made to believe that the danger of vaccinal syphilis resides in the blood alone. Liquid

without perceptible colour has in well-authenticated cases transmitted syphilis, but, without the aid of the microscope, it is impossible to say whether this colourless liquid contains blood elements or not. All coloured vaccine virus should be rejected. In the matter of diagnosis, ulcerating vaccinia must not be confounded with chancre, which it often simulates; but chancre never produces so extensive ulceration, and is accompanied by indolent adenopathies. Again, ulcerating vaccinia appears from twelve to fifteen days after vaccination, while the chancre seldom appears before the end of three weeks, and never before fifteen days. Vaccinal eruptions are at times mistaken for syphilides. They appear from the ninth to the fifteenth day after vaccination, while syphilides cannot appear before nine or ten weeks after this time. In vaccinating a number of children at once, the instrument should always be most carefully washed after each single vaccination. The only sure prophylactic measure is to employ only animal vaccine. (Edinburgh Medical Journal, Oct., p. 395.)

AFFECTIONS OF THE EYE AND EAR.

FURUNCULOSIS OF AUDITORY CANAL.—Menthol in.

Dr. R. Cholewa, of Berlin, has treated successfully furunculosis in the ear by means of a twenty per cent. solution of menthol in oil, applied on cotton tufts to the canal of the ear. This is held to be antibacterial treatment. These tampons of cotton soaked in menthol solution exercise a slight pressure on the infiltrated spot. The slight burning soon ceases, and in the place of the darting pain, come relief and sleep at night. The cotton tufts can remain twenty-four hours in place, if there is no suppuration. If suppuration occurs, the boil must be opened. (American Journal of Medical Science, Sept., p. 307.)

GRANULAR OPHTHALMIA.—Corrosive Sublimate in.

Arnauts (*Annales d'Oculistique*) gives some records of the results obtained in the treatment of trachoma, by corrosive sublimate, at the clinic of Dr. Romiée, during three years. His experience is strongly in favour of this remedy, in preference to the more commonly used nitrate of silver, sulphate of copper, and other caustics and astringents. He is especially pleased with its effect in old chronic cases, with severe pannus; and states that the disappearance of the corneal vascularity is so rapid that it suggests some special action of the sublimate on the newly formed vessels. The following is the method employed. The patients are seen, if possible, twice a week, and at each visit, after instillation of a few drops of a five per cent. solution of cocaine, the conjunctival surface of the lids is brushed with a solution of corrosive sublimate, 1 to 120 or 1 to 100.

In addition, collyria of the same salt are given, of the strength of 1 to 500 or 1 to 400, which the patients are directed to drop into the conjunctival sac three times daily. These drops give rise to some irritation and conjunctival injection, which are said to pass off in a few minutes. In sensitive patients, a weak solution of cocaine may be previously applied.

In the *Recueil d'Ophthalmologie* for February, 1888, Staderini, writing on this subject, gave a very favorable account of his experience of the use of corrosive sublimate, stating that the results obtained by its employment in all stages of granular conjunctivitis were very satisfactory. He suggested that its action was that of an antiseptic, and a solvent of the lymphoid infiltration in the submucous tissue. If the microbe described by Sattler, Poncet, and others, be the chief or sole cause of trachomatous conjunctivitis, corrosive sublimate should prove of great efficacy in the treatment. (Ophthalmic Review, May, 1889.) (Medical News, June, p. 467.)

OTORRHŒA.—Treatment by Powdered Boric Acid.

This article, by Dr. Meyer, of Copenhagen (*Annales des Mal. de l'Oreille*, February, 1889), is one setting forth some of the objections to the employment of powdered boric acid in the treatment of otorrhœa. It is, in fact, a review of the *pros* and *cons* of the subject since boric acid was first introduced to otological work by Bezold, of Munich, in 1880. Most of the objections can be traced to the improper use of this valuable antiseptic, though it is doubtful whether some of the evils attributed to its misuse can be really substantiated, as, for instance, the increase in the frequency of mastoid disease since the introduction of boric acid in the treatment of ear disease. It can be unhesitatingly and most positively asserted that powdered boric acid should not be used in acute otitis media, nor in chronic suppurations of the tympanic cavity with perforation in the flaccid membrana (membrane of Shrapnell). The same may be said of any other powdered medicament employed in the same aural diseases. It may, however, be employed with the very best results in cases which have passed the acute stage, with large perforation in the membrana tympani in its inferior part, and in which the discharge is slight, and the mucous membrane smooth. It should always be used in very small quantities. Dr. Meyer concludes his article by stating that "the surgeon may, with entire safety, treat every chronic otorrhœa with powdered boric acid when there is a free escape for the pus, if he is careful to use only small quantities at a time, and examine his patient daily. Before insufflation of this powder, the ear should be washed out with care, and dried by means of sterilized cotton. This treatment should never be confided to the patient, nor to his attendants; the physician must do it, with the above-named cautions. (American Journal, May, p. 525.)

SPECIFIC OPTIC NEURITIS.—Treatment.

Primary specific optic neuritis is relatively a rare disease, occurring mono- or bi-literally in patients infected not a very long time,—from six months to three years. Anti-syphilitic treatment is followed, in the majority of cases, by improvement, in some even by a perfect restoration of sight, As a rule, the visual field remains somewhat concentrically contracted, and the optic nerve becomes paler than usual. The prognosis is better when the neuritis follows soon after the primary infection and when the patient is young. When the infection has occurred more than a year previous the prospect of complete recovery is small; yet mostly an arrest of the process may be obtained by anti-syphilitic treatment, best by an energetic course of mercurial inunction. The prognosis is worse in the other forms of specific optic neuritis, namely, choked disc from intracranial tumours, and descending neuritis. The worst form of specific affection of the optic nerve is the simple, non-inflammatory, atrophy, dependent on syphilitic disease of the brain and spinal marrow. All such cases end, sooner or later, in total blindness, in spite of anti-syphilitic or any other treatment. (Prof. C. Horstmann, Berlin, Knapp's Archives, June, 1889, p. 185.)

OBSTETRICS AND GYNÆCOLOGY.

ALBUMINURIA during Pregnancy and Parturition.

Meyer (*Zeitschrift für Geburts und Gyn.*, Band 16, Heft 2), in an elaborate study of this subject, in the Copenhagen Maternity, found albuminuria present in 5.4 per cent. of pregnant women; albumin with casts in 2 per cent. Albuminuria with casts was more frequently found in the first than in subsequent pregnancies, from the twentieth to twenty-fourth, and thirty-eighth to thirty-ninth weeks; the age of the patient was without influence. During the last thirty days of pregnancy but 28.9 per cent. of urine examined was without albumin. Premature births occurred in 8 per cent. more patients who had albuminuria than in those without, and in 21.5 per cent. when casts were present; the greater number of children in the latter patients were born more than four weeks before term. In the majority of cases albuminuria, with and without casts, beginning during pregnancy, persisted during labor. Of women in labor, 25 per cent. had albuminuria, and 12 per cent. albumin and casts; this condition arose during labor, was most frequent in primiparæ, and was uninfluenced by the patient's age; 53.7 per cent. of patients with albuminuria had casts. Albuminuria during pregnancy persisted after labor, while that occurring during labor generally disappeared

subsequently. In patients who had albumin but no casts, a tendency to vesical catarrh after catheterization was noticed. While in the majority of cases albumin and casts disappeared after labor, in a considerable proportion of cases nephritis supervened, especially in those in whom the condition began during pregnancy; neither the patient's age nor repeated pregnancy influenced these cases. Infarction of the placenta, premature separation, and fœtal death were most frequent in cases of albuminuria with casts. (American Journal of Medical Science, August, p. 213.)

ANTISEPTIC INJECTIONS IN OBSTETRIC PRACTICE.—The Use and Abuse of.

At the American Gynæcological Society, September, 1889, Dr. H. J. Garrigues read a paper on this subject, in which he said, "If one was satisfied that puerperal fever in any given case was the result of infection, the use of antiseptic injections was indicated. Like all other useful measures, this had sometimes been carried to extremes. The other extreme was reached by those who discarded injections after labor altogether. Much mischief was undoubtedly done by injections when they were not needed—as, for example, when they were used too frequently, of too great strength, etc. At the Maternity Hospital, at Blackwell's Island, from 1874 to 1885, the mortality had been 4.17 per cent. During the period from 1884 to 1888, in which the author's method of treatment had been followed at the same institution, there had been but two fatal cases, or a mortality of a fraction of one per cent. The morbidity also had been small. Vaginal injections before delivery were believed by the author to be useful, though they were objected to by many writers on the ground that they were dangerous, that the lubricating mucus of the vagina was removed, etc. In answer to the objections that the bacteria on the surface of the vaginal mucous membrane were harmless, it must be remembersd that they would not be harmless if they penetrated the subjacent tissues. They would also constitute an element of danger when carried from the vagina into the womb. If vaginal injections were used prior to labor, the vagina would be dilated and the micro-organisms removed or destroyed. It must not be forgotten, too, that during labor, a new supply of mucus was secreted to replace that which might have been washed away. In cases in which, for any cause, frequent examinations were required during labor, vaginal injections should be repeated as often as every three hours, and, if instruments were required or the hand was introduced into the uterus, both uterine and vaginal injections would be required. Such injections were better than intra-uterine applications of antiseptic material with a swab, which was recommended by some. Infection would not occur if the labor had been antiseptic. Subsequent to labor, if the lochial discharge became fœtid, another indication for intra-uterine irriga-

tion would exist, likewise if *débris* were left in the uterus, if there had been sloughing as the result of prolonged labour if the fœtus had been macerated, etc. Puerperal peritonitis should be treated with such injections as soon as it was recognized, and such treatment might also be required after abortion. As to the proper material for injections, solutions of bichloride of mercury might be used, but they should be used with great caution. Since 1884 reports of twenty-two fatal cases from the use of such injections had been reported, though it must be admitted that four of this number should not be considered, and in others the solution had been too strong, or had been too frequently used, or had been improper in some other way. The strength of the mercurial solution should not exceed 1 to 5,000, and its use should immediately be withheld if toxic symptoms were apparent. Some of the contra-indications to its use were anæmia, kidney disease, and diarrhœa. Other solutions had also been extensively used for this purpose, especially that of carbolic acid. The objection to this was that its odor was offensive to many, it benumbed the hands, and might produce severe results to the patient's entire nervous system. Thymol, salicylic acid, chloride of zinc, hydronaphthol and various other substances had advocates. The author had made extensive trial of creolin, and had been well pleased with the results. In two-per-cent. solutions it was perhaps as useful and as unobjectionable as anything that had been tried. Objections to its use were that its agreeable odor might mask offensive odors which would lead to the discovery of important conditions; also that, as it formed an opaque emulsion and not a transparent fluid, it might conceal particles the presence of which it would be desirable to ascertain. It had also valuable lubricating and hæmostatic properties. If vaginal douches alone were to be given, the author preferred to use a glass vaginal tube six inches long. If the solution was to be carried into the uterus, a single tube was preferable to a double one, and it should be carefully guided into the uterus with the fingers, great pains being necessary to avoid forcing any fluid or uterine *débris* into the Fallopian tubes. The patient, while receiving the injection, should be on the back, on a bed-pan or a rubber cloth so folded that it would catch and carry away all fluid as it returned from the vagina. The tube must not be forced into the uterus, but must be withdrawn and re-introduced if obstruction was encountered. Failure to observe this precaution had resulted in perforation of the uterus and injection of the bichloride solution into the abdominal cavity. The temperature of the uterine douche should not exceed 110° to 115° F., and the quantity should not be greater than two or three pints. For vaginal douches there would be no objection to using from two to three quarts. The return fluid should be carefully examined for septic matter, the uterus should be compressed after the irrigation was completed, and no fluid should be allowed to remain in the vagina. (New York Medical Journal, Sept. 28, p. 357.

BELLADONNA AND CANNABIS INDICA.—Use of per Rectum in Gynæcological Practice.

In the *Boston Med. and Surg. Journal*, May 23, 1889, Dr. J. W. Farlow calls attention to the value of employing the absorbing power of the rectum in different affections of the pelvic organs. The advantage of this method of treatment he finds to be especially dependent on the more perfect retention by the rectum of drugs than when they are introduced by the vagina. The remedies to which he especially refers as used in this manner are belladonna and cannabis indica. He states that belladonna has a sedative action on the uterus and pelvic contents, and relaxes rather than constipates the bowels. Its value in irritable conditions of the bladder and urethra is well known. This combination of qualities is called for in a very large number of women. Cannabis indica has somewhat similar properties, and especially for sensitive ovaries, and in the various painful affections of those organs its use is often productive of much good. It has few equals in its power over nervous headaches such as women with pelvic trouble are subject to. About the age of puberty there is frequent complaint of painful menstruation with pelvic and general excitement, and often weakness from this after the flow has entirely ceased. Frequent micturition and headache are also very common at this time. If the excitement can be moderated, if the pelvic organs can be made less irritable, there will be less pain, less hemorrhage, less weakness, and consequently a much longer period of health between the catamenia. This Dr. Farlow believes may be accomplished through the rectal use of belladonna and cannabis indica, beginning a few days before the menstrual symptoms appear. So, also, tenderness of the ovaries, and various symptoms which accompany the menopause, are often relieved by the same mode of treatment. Dr. Farlow generally orders a $\frac{1}{4}$ grain of extract of belladonna and extract of cannabis indica in a rectal suppository, to be used at night, and sometimes it is well to use one also in the morning after the bowels have moved. There are some patients who can tolerate only $\frac{1}{8}$ grain of extract of belladonna even by the rectum. To such smaller amounts should be given. (Therapeutic Gazette, July 15, 1889, p. 483.)

CHRONIC ENDOMETRITIS.—Use of Tannin and Glycerine Tampon in Diagnosis.

Schultze (*Centralblatt für Gyn.*, May 11, 1889) urges the use of the tannin and glycerin tampon, emphasizing the fact that the purulent character of the uterine discharge, and not its amount, is the main indication of the existence of endometritis. The discharge is often so slight that the patient herself does not notice it, yet it is readily appreciated on the removal of a tampon which has lain in contact with the cervix for twenty-four or forty-eight hours. After

practising this method daily for twelve years the writer can testify to its great practical value. (American Journal, September, p. 324.)

Chronic Endometritis, Uterine Catarrh, &c.,—Electricity.

In the treatment of certain morbid conditions of the endometrium, especially chronic endometritis, uterine catarrh, and membranous dysmenorrhœa, I have found the application of the negative current through the insulated intra-uterine sound produce far more uniformly good effects than any other form of intra-uterine medication with which I am acquainted. I am quite satisfied that there is nothing to compare with this in these very troublesome cases, many of which had lasted for years, and resisted every kind of treatment previously used. I have now notes of several cases of membranous dysmenorrhœa either completely cured or very greatly benefited by four or five intra-uterine applications of this kind, and quite a number of cases of obstinate chronic uterine catarrh of long standing, in which the same can be said. I do not think that I have ever made more than five or six applications. Now, I will confidently appeal to any gynæcologist of experience to state if he is cognisant of any method of dealing with such cases, the obstinacy of which is proverbial, in which similar results have followed so brief a treatment. For neatness, simplicity, and effect I believe it surpasses all other methods of dealing with these conditions of the endometrium, nor have I come across the slightest subsequent inconvenience. (Dr. W. S. Playfair, p. 412.)

CORROSIVE SUBLIMATE AND CREOLIN in Obstetric Practice.

Dr. H. J. Garrigues appends the following conclusion to a paper on Corrosive Sublimate and Creolin in Obstetric Practice. (See also page 414 of this volume.) 1. The solution of bichloride of mercury used for vaginal and intra-uterine injections ought not to be stronger than 1 : 5000. 2. No more than one to one and a half quarts should be used. 3. The fluid should be removed from the uterus and the vagina. 4. No injections should be used in normal cases after the birth of the child. 5. Intra-uterine injections should not be given oftener than once or twice in twenty-four hours, vaginal every three hours. 6. The symptoms and signs of absorption should be constantly looked for, and the use of the bichloride discontinued at their first appearance. 7. The injections should not be used on patients suffering from anæmia, abortion, kidney disease, or diarrhœa. 8. It is safest to abstain from the mercurial injections altogether until experience shows that the corrosive sublimate gives better results than any other antiseptic. 9. Corrosive sublimate should be used for disinfection of the outer surface of the patient, for the hands of doctors and nurses, and for materials brought in contact with the patient. 10. Carbolic acid is, perhaps, as dangerous in injections as corrosive sublimate. 11. Other less effective germicides may occasionally answer a good purpose. 12.

Creolin is an excellent antiseptic, little poisonous, a powerful hæmostatic, and makes all surfaces slippery—properties that recommend it especially in obstetric practice. (American Journal, August, p. 127.)

INDUCTION OF PREMATURE LABOUR.—Hegar's Dilators.

[Dr. Lewers records two cases in which the proceeding here described was followed with satisfactory results both to mother and child.] Looking at the satisfactory results of dilating the cervix with Hegar's dilators in gynæcological practice, it seemed to me that a similar method was worth trying for dilating the cervix in order to induce labour. The ordinary dilators used in gynæcology are not, however, of sufficient size for this purpose, and therefore Messrs. Kröhne and Sesemann have supplied me with a larger series running up to No. 40, which is $1\frac{3}{4}$in. in diameter. It will be remembered that the ordinary series stops at No. 26. The details of the method are as follows. The patient is given a copious vaginal douche of hot iodine water; she then lies in the ordinary obstetric position, and the os uteri is brought into view with Sims' speculum. Hegar's dilators are then passed one after the other till a size is reached which seems to be the largest that will for the time being pass into the cervix. The dilators lie ready for use in a porcelain tray covered with 1 in 40 carbolic lotion, and as each one is wanted it is dipped in terebene oil (1 in 5). In a few minutes the dilator will be found to be fitting less tightly, and then it may be withdrawn and the next size introduced. As the larger sizes are reached, more time should, if necessary, be allowed between the introduction of the dilators; but it may happen, as in my first case, that the whole series as far as No. 34 (which was then the largest I had) may be passed one after the other without any difficulty being met with. During the process the vagina is from time to time irrigated with 1 in 40 carbolic lotion. When the largest bougie of the series has been passed, it is left in the cervix, the lower end of the bougie resting against the posterior vaginal wall. The presence of the dilator, *plus* the degree of dilatation already present, may be sufficent to start strong pains, and when this is so, the dilator is withdrawn and labour allowed to proceed in the usual way. If only slight pains, or no pains, result—say, four hours after the insertion of the largest size—the membranes may be ruptured. Considering that the os is dilated to the size of a circle $1\frac{3}{4}$in. in diameter, this proceeding is not open to the objections that apply to rupturing the membranes in the first instance, when the os is undilated. (Dr. A. H. N. Lewers, Lancet, Aug. 3, p. 213.)

INVERSION OF UTERUS of 16 Months' Standing. Recovery.

At the Obstetrical Society of London on May 1, 1889, Dr. W. Newman, Surgeon to the Stamford Infirmary, related the following case:—The patient, aged 23, was delivered of her first child on

July 22nd, 1887, being attended by a midwife. Convalescence was very slow, and she became weak, anæmic, and subject to slight but almost continuous hemorrhage. The patient was admitted into the Stamford Infirmary on November 20th, 1888. The os uteri was found to be dilated; a large globular mass projected through it and filled up the vagina. The sound when slipped over the tumour was arrested, all round, three-quarters of an inch above the margin of the os. The fundus could not be felt above the pubes. The speculum displayed the mass, which was very vascular, bleeding on the slightest touch. On November 24th, at 10 a.m., Aveling's repositor was introduced, the disc being one inch and a quarter in diameter. The instrument was fitted with shoulder-straps and waistband of linen, and four india-rubber bands (pressure 2 lbs., as tested) connected them with the stem of the instrument. Eleven hours later the disc had slipped slightly to one side. Twenty-four hours later the instrument was replaced (pressure 3 lbs.). The disc slipping again, it was removed thirty-six hours after its first introduction. The hemorrhage ceased. On December 9th, at 4.30 p.m., the repositor was again employed, with a wooden disc two inches and three-quarters in diameter. A wide belt of soap plaster on moleskin was applied just below the iliac crests, to give a firm basis for fixing the instrument. Four rings, at proper distances, were fastened to this belt by loops of tape. The elastic bands (pressure 3 lbs.) were made fast to these rings. In fifteen hours the instrument was removed and replaced; in twenty-four it was once more removed, and the original smaller disc substituted (pressure 4 lbs). On December 11th, at 9.30 a.m., the disc was found to be buried, together with over an inch of the stem. The instrument was removed with difficulty. The uterus was found to be reduced. On January 12th, 1889, a normal period occurred. On January 29th the patient went home quite well. Dr. Newman attributed the failure of the first attempt at reduction to the small size of the disc and the imperfect counterfixation of the repositor by the shoulder-straps and belt. He advocated the plaster belt which he had contrived. (British Medical Journal, May 11, p. 1057.)

NEPHRECTOMY BY ABDOMINAL SECTION.

At the Royal Medical and Chirurgical Society, April 9, 1889, Mr. J. Knowsley Thornton, who read this paper, accompanied it by a complete table of twenty-five cases, showing age, sex, condition, disease, date of operation, situation of incision, method of treating ureter, whether drained or not, immediate result and subsequent history to date. Eight of the cases had already been brought before the International Medical Congress in Copenhagen, and these were marked off from the seventeenth unpublished cases in the table, and but briefly, if at all, referred to in the context. Of one

of them, No. 6, which was reported a failure in 1884, with pain in the bladder and the other kidney, a very satisfactory subsequent history was now given, the patient being in perfect health, married, and mother of a son. There were twenty recoveries and five deaths in the series, a result 20 per cent. better than that generally given for all nephrectomies, including those by lumbar section. This result was compared with that in ovariotomy eleven years ago, the mortality being then much higher for this comparatively simple operation. Two of the fatal cases were pointed to as not properly to be counted against abdominal nephrectomy, one being a malignant tumour which had perforated the right pleura, and the other having died of hemiplegia, which was brought on by the anæsthesia rather than by the operation. All the features of special interest in both the successful and fatal cases were touched upon. The superiority of nephrectomy over nephrotomy and drainage for the cure of hydronephrosis was illustrated by six cases. Incision of suppurating kidney as a preliminary to nephrectomy was condemned. The author's practice of pinning out the ureter had led to no troubles and was claimed as the chief factor in success. The removal of suppurating kidneys without any puncture during operation was strongly advocated whenever their size admitted it. The superiority of Langenbach's incision was insisted upon. The question of drainage was fully discussed, and that of the differential diagnosis in sarcoma of the capsule and of the kidney touched upon. A question was raised as to the varieties of tubercular (so-called scrofulous) kidney. And the paper concluded with a promise of records of lumbar and abdominal nephrotomies and nephrolithotomies in which the mortality was considerably lower than in nephrectomy. Either figures or actual specimens were shown of many of the cases. (British Medical Journal, April 13, p. 835.)

PERITONEUM.—Flushing of in Abdominal Section.

Now that the practice is commonly adopted of washing out or flooding the peritoneum after abdominal sections, in which blood or other fluids have necessarily been effused, it is at least desirable that this should be done in the best manner possible. The fluid, whether simple warm water or boracic lotion, is usually poured into the wound from a jug. In the gynæcological department of the Leeds Infirmary, we introduce it by means of a glass funnel attached to a glass drainage tube by about two feet of rubber tubing. The drainage tube is introduced deep in the pelvis. The water enters exactly where it is wanted, and washes upwards and out of the abdominal wound all blood clots, or effused fluids. The drainage tube is left *in situ*, after by pressure removing as much of the fluid as possible. Dr. Braithwaite has also introduced what we consider a valuable means of preventing giving way of the abdominal walls at the wound; this a not uncommon occurrence, and is very distressing

to the patient some months after the operation. The linea alba, we think, should not be divided, but the peritoneum should be reached through the sheath of the rectus muscle, which is pulled aside by retractors, and afterwards covers what would be a weak place. (Mr. J. S. Briscoe, British Medical Journal, Sept. 14, p. 600.)

PLACENTA PRÆVIA.—Rules for Management of.

1. After diagnosis of placenta prævia is made, proceed as early as possible to terminate pregnancy. 2. When once we have commenced to act, we are to remain by our patient. 3. If os be fully expanded and placenta marginal, we rupture the membranes and wait to see if the head is soon pushed by the pains into the os. 4. If there be any slowness or hesitation in this respect, then employ forceps or version. 5. If the os be small and placenta more or less over it, the placenta is to be carefully detached from round the os, if no further bleeding occur we may elect to wait an hour or two, but should the os not expand, and if dilating bags are at hand, the os may be dilated. If it appears the forceps can be admitted easily, they may be used, but if not, version by combined external and internal method should be employed, and the os plugged by the leg or breech of fœtus; after this is done, the case may be left to nature, with gentle assistance, as in footling and breech cases. 6. If the os be small, and if we have neither forceps nor dilating bags, then combined version should be resorted to, leaving the rest to nature, gently assisted. 7. If during any of the above manœuvres, sharp bleeding should come, it is best to turn by combined method in order to plug by breech. 8. Where the fœtus occurs before the end of seventh month version by combined method, no force following is the best plan.—To these I may add, however, if we employ a routine method in all cases, it will be found that the version by combined method, no force following, gives a result as good, if not better, than any. The after-treatment must be conducted on the modern principles; should oozing occur after the expulsion of the placenta, the swabbing of the lower uterus by styptics will be easy; and inasmuch as the outlet of the uterus is liable more especially to be blocked by adherent clots, it will be wise to irrigate the uterus daily with some antiseptic solution, or insert iodoform pessaries in vagina, particularly if the irrigation cannot be done. (Dr. Braxton Hicks, Medical Press and Circular, August 28, p. 196.)

[See also Dr. Braxton Hicks' article on Placenta Prævia at page 398 of this volume of the *Retrospect*.]

Placenta Prævia.—Diagnosis by Abdominal Palpation.

At the Obstetrical Society on June 5th, 1889, Dr. Herbert Spencer, assistant obstetric physician to University College Hospital, having described shortly two cases in illustration of the possibility of determining the site of the placenta by abdominal palpation

when it is situated in the upper segment of the uterus, the author gave in detail seven cases of placenta prævia in which he had been able by palpation of the abdomen to diagnose the presence of the placenta in, or its absence from, the front wall of the lower segment before a vaginal examination was undertaken, the diagnosis being subsequently verified by vaginal and intra-uterine examination. The seven observations were all made in multiparæ with head presentations, before the membranes were ruptured, without the employment of an anæsthetic, and in the absence of pains. In three of the seven cases the exact site of the placenta on the front wall of the lower segment was determined by abdominal palpation, and in some of the cases the placenta was felt at a time when it was impossible to feel it by the vagina. In the remaining four cases the placenta was diagnosed by abdominal palpation to be absent from the front wall. In making the examination, it was recommended that the patient lie on her back, the bladder having previously been emptied; the examination should be gentle, made in the absence of pains, and prolonged over several minutes, or repeated if necessary. *Rules*:—In an ordinary vertex presentation (placenta in the upper segment), the occiput, forehead (at a higher level), and side of the head can, under favourable circumstances, be distinctly felt in the lower segment of the uterus by means of abdominal palpation. In a case of placenta prævia, in which the head presents, the head is not felt where the placenta is situated, it is distinctly felt where the placenta is absent. In cases where the placenta is in front, the organ is felt as an elastic mass of the consistence of a wetted bath sponge, which keeps the examining fingers off the head. Its edge may be felt, and has the shape of the segment of a circle; within the circle all is obscure to the touch; outside the circle the head or other part of the child is plainly felt. Impulses to the head are not clearly felt through the placenta; impulses to the head through the placenta are distinctly felt at the spot from which the placenta is absent. The same applies to combined vaginal and abdominal examination. (Lancet, June 15.)

PREGNANCY.—Diagnostic Points in the First 3 Months. Löhlein (*Deutsche Med. Wochenschrift*, No. 25, 1889) regards Hegar's sign, softening of the lower uterine segment, as a most valuable sign of early pregnancy. He has found the elastic, cystic feeling given by the body of the uterus equally significant, often suggesting a bicornate uterus. This condition is present from the second half of the second month to the end of the third; it is best appreciated by bimanual examination, often *per rectum*. Auscultation of the fœtal movements is also a valuable sign, applicable three or four weeks before life is felt. In a case of small ovarian cyst with disordered menstruation and bluish vagina, he was deceived by contractions of the recti and oblique muscles. (American Journal of Med. Science, Sept., p. 319.)

PUERPERAL ECLAMPSIA.—Treatment.

Dr. Jaggard, of Chicago, in a discussion on puerperal eclampsia, said:—As to the treatment of eclampsia during pregnancy, the weight of evidence and opinion is decidedly in favour of an expectant plan of treatment, unless abortion or premature labour is imminent. Wait until the seizures are well over and until convalescence is established before interrupting pregnancy. If, however, abortion or premature labour is imminent, the indication is to aid in the evacuation of the uterus. In eclampsia, during labour, three indications are clear: 1st. After the insertion of a gag and the protection of the woman's body by pillows and the like, the indication is to control the convulsions by profound narcosis. The choice of remedies is not so important as that the narcosis shall be deep and continued. Chloroform is by far the best agent to control the seizures, while the narcosis can best be maintained by large doses of chloral and the bromides exhibited *per rectum*. Winckel, who relies exclusively upon chloroform inhalations and chloral *per rectum*, has had only seven deaths in ninety-two cases. As at present informed, this result is better than that obtained by any other plan of treatment on record. 2nd. The second indication is to evacuate the uterus as rapidly as may be consistent with the safety of the mother and child. Experience teaches that the convulsions cease when labour terminates in about one-third of the cases, in one-third they grow less frequent and severe; only in the remaining one-third do they continue without change. Early in the first stage of labour, before effacement of the cervix and dilatation of the os, puncture of the membranes is commonly the best means to accelerate labour. The escape of the liquor amnii is not infrequently followed by an abatement of the convulsions. Later in the first stage, after effacement of the cervix, digital dilatation of the os externum is often indicated. It is seldom necessary to incise the os externum. Delivery may be completed by the forceps or version and extraction, according to the conditions of the concrete case. 3rd. The third indication is to eliminate the retained excrementitious products of the urine by diaphoresis, purgation, and diuresis. The hot pack is probably the best means. The vapour bath, by means of the alcohol lamp, is efficient and easily exhibited. Pilocarpine must be used with extraordinary caution only in the beginning of the disease, when the coma is light, the pulse full, and the respiration free. Deep coma, weak heart, and beginning œdema of the lungs are absolute contraindications. (British Gynæcological Journal, August, p. 266.)

RETAINED MEMBRANES.—Treatment.

Eberhart states the practice followed in Kaltenbach's Clinic at Halle in retention of the membranes. It is believed that auto-infection does not occur unless the mother suffers from a pathological process during pregnancy which produces septic matter at labour. Nor-

mally, the uterine cavity is free from germs. Retention of membranes is dangerous only when the membranes lie in the cervix and vagina, where they readily become infected. They should be removed from the cervix and vagina by two fingers gently inserted, but the uterine cavity should not be entered. The vagina should be frequently and thoroughly douched with antiseptic solution, and ergotin should be given to secure the expulsion of fragments remaining in the uterus. (American Journal, September, p. 320.)

RETAINED PLACENTA.—Causes and Treatment.

Ahlfeld (*Zeitschrift für Geburts. und Gynäk.*, Band 16, Heft 2) considers a cause of retention of the placenta to be stricture of the cervix and lower uterine segment produced by irritability of the uterine tissues; this condition frequently follows efforts to expel the placenta by pressure. Adhesion of the placenta to the uterus is also a cause of placental retention. Such adhesion results from inflammation of the placenta (specific or septic), from maternal nephritis, and from causes as yet unknown. Regarding treatment, the placenta should be expelled spontaneously, if possible, and care should be taken not to irritate the lower uterine segment (Ahlfeld practises the expectant method in delivering the placenta). When manual interference is necessary the hand should not be inserted in the uterus, but gentle traction should be made upon the edge of the placenta with two fingers within the cervix. The strictest precautions should be employed to keep the vagina and cervix aseptic. Ahlfeld reports thirteen cases of retained placenta, only four of which had normal puerperal periods: One died, the remainder suffered from more or less septic infection. (Ibid, Sept., p. 320.)

UTERINE FIBROIDS.—Nature and Limitation of Treatment.

At the American Gynæcological Society, September, 1889, Dr. P. F. Mundé, of New York, read a paper under this title. There were many cases of uterine tumour in which no treatment was required. Referring to the usual classification of uterine tumours, it was noticeable that those of the subperitoneal variety were seldom accompanied by hemorrhage; those of the submucous and interstitial varieties frequently were. The treatment for the subperitoneal variety, in cases in which treatment of a surgical character was required, would consist in removal of the uterus with the tumour, or in removal of the ovaries alone. In the interstitial variety the tumour could often be removed without removing the uterus; in the submucous variety the tumour alone would require removal. If the tumour was not removed, ergot or electricity might be substituted, the object being to force the tumour as far as possible into the pelvis. The greatest difficulty was to be expected in attempting to remove sessile fibroids seated near the fundus through the undilated utero-vaginal canal. The German method, of performing laparotomy and removing the tumour through the opened uterus, was perhaps

preferable in such cases. Hemorrhage accompanying uterine tumours might be treated with the curette or by electro-puncture through the vagina. It was maintained for the latter, which was Apostoli's method, that it would cause the tumours to cease growing, but this cessation was not permanent. In the three cases in which the author had performed oophorectomy for the relief of uterine tumours the results had been satisfactory. In six cases in which subperitoneal tumours had been removed through the abdomen recovery had taken place in four; in all cases the pedicle had been treated by the extra-peritoneal method. Tumours which were seated near the os internum tended to dilate the os, and in many cases no treatment would be required. In some cases in which operation was indicated they could be enucleated and drawn out after the capsule had been split. Laparotomy should not be performed if a tumour was causing no serious trouble, and no operation was indicated in most cases in which the menopause was imminent. (New York Medical Journal, Sept. 28, p. 360).

UTERINE INVERSION.—Gowan's Hydrostatic Repositor.

No amount of manual dexterity and patience, however great, will suffice to reduce the chronically inverted uterus, but steady well-directed mechanical pressure will generally effect reduction. The cup and stem repositors, which have hitherto been used with much success, are open to at least two objections:—1. The necessity for changing the cups as reduction proceeds; and 2, The difficulty in withdrawing the instrument when reduction has been effected—for not only does the cervix then grip the stem *below* the cusp, but this latter also acts as a plunger in a suction pump, and the negative pressure induced by attempted withdrawal is very great. Mr. Campbell Gowan's instrument, which was exhibited at the Leeds meeting by the makers, Messrs. Down Bros., St. Thomas's Street, London, S.E., obviates these difficulties. It consists of a double india-rubber bag mounted on a steel X-shaped frame, and a stout rubber tube called the supply-pipe. It is kept in position by four *in*elastic perineal bands attached to the four points of the X frame and buckling on to a stout waistband, which latter may, if required, be coated with adhesive plaster. The arrangement of the frame leaves the meatus urinarius and the anus uncovered, so that the patient is enabled to micturate and defecate. The pressure is applied through the supply-pipe by any fluid, from compressed air to mercury (oil alone excepted), and by any means, from a Higginson's syringe to a reservoir over the patient's bed, or the ordinary service supply-pipe. Reduction having been effected, the bag is emptied by disconnecting the supply-tube and the reservoir. The upper part then collapses, and the whole is easily withdrawn from the vagina. (Lancet, Sept. 21, p. 598.)

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Medicine.

GENERAL MEDICINE AND THERAPEUTICS.

Art. 1.—ON THE RESULTS OF PASTEUR'S METHODS OF INOCULATION IN THE TREATMENT OF HYDROPHOBIA.

By M. Armand Ruffer, M.A., M.D.Oxon.

[We reproduce here the concluding portion only of Dr. Ruffer's very important communication, read at the Annual Meeting of the British Medical Association, 1889.]

We now come to the question of the real value of M. Pasteur's treatment, and I think the question you wish me to answer is the following one. Supposing one of my patients or myself to have been bitten by a rabid animal, would the chances of life be greater by trusting to luck, or by at once going to be inoculated according to M. Pasteur's methods? In order to answer that question fully, it is necessary to know what the average mortality used to be in people bitten by rabid animals before the invention of M. Pasteur's treatment. Statistics of deaths occurring among patients bitten by rabid animals, and who declined to undergo M. Pasteur's treatment, must also be studied. There are several series of statistics which were published before the discovery of M. Pasteur, and some which have been made independently of M. Pasteur since his first publications. It is necessary to make a distinction between the people bitten by dogs, cats, and other domestic animals on the one hand, and people bitten by wolves. Now, in the first class of cases the mortality has been variously estimated. Faber has tabulated the cases of 145 people bitten by rabid animals in the kingdom of Wurtemberg, and he found that the mortality amounted to 19 per cent. At the General Hospital in Vienna, in 1860, it was found that of 115 persons bitten by rabid animals 25 died (mortality 21·73 per cent.). Leblanc states that of 32 people bitten by dogs undoubtedly rabid 5 died (mortality 15·82 per cent.). During the year 1887, 44 people bitten in Paris by rabid animals declined to undergo M. Pasteur's treatment, and 7 of them died (mortality 15·9 per cent.). Other statistics show a mortality varying between 20 and 50 per cent., but these numbers are probably too high because they are derived from official reports, the officers of the State being more likely to know of the fatal cases than of those which ended in recovery, and I shall, for the sake of argument, assume the mortality to be 15 per cent.

On the other hand, in the case of wolf bites, the statistics of Renauld, Vallet, du Mesnil, Bombarda, and Gamaleïa, comprising

together 1,296 cases of wolf bites, show a mortality of 60 to 64 per cent. Thus, for instance, one wolf at Ewanguliezenvic, in Russia, bit 35 men and 23 women. The wounds were cauterised with caustic potash, but, nevertheless, 24 men and 15 women died (mortality 67·24 per cent.) within six months. The mortality also varies according to the part of the body which has been bitten. The statistics of the Comité d'Hygiène from 1862 to 1872 show that of people bitten on the face 88 per cent. died (50 cases); on the hands 67·25 per cent. died (113 cases); on the upper limbs 30 per cent. (40 cases); on the lower limbs 21·21 per cent. died (33 cases); on the trunk 31·81 per cent. died (22 cases); on the face and hands 2 men died out of 8 persons bitten.

This mortality is probably far too high, because it stands to reason that an official body like the Comité d'Hygiène would be at once informed of the fatal bites, but would take no notice of most of the cases which end in recovery. At the same time, these figures show that face bites are far more dangerous to life than wounds in other parts of the body. Indeed, according to Leblanc's statistics, comprising, it is true, only very few cases, the mortality after face bites amounts to 80 per cent.

The statistics taken at the Pasteur Institute are made in the following way: Careful inquiries are made from each patient as to whether the animal which has bitten him was rabid or not. Whenever possible the head of the dog, cat, or other animal which has inflicted the wounds is sent to M. Pasteur's laboratory. An emulsion is made with the brain of that animal, and injected under the dura mater of a rabbit. If it is not possible to send the head, a certificate from a veterinary surgeon who has seen the animal is obtained, and at the same time careful inquiries are made as to the number of persons and animals which the rabid beast may have bitten. The statistical tables are then divided into three columns. In the first column (A) are placed all the people who have been bitten by animals which have been proved to be rabid, the proof being by the inoculation from some part of the central nervous system of the biting animal reproducing rabies when inoculated into a guinea-pig or a rabbit. In this column are also placed people who have been bitten by an animal which has bitten other people or animals who have died of rabies. In the second column (B) are reckoned people who have been bitten by animals certified to be rabid by veterinary surgeons. In the third column (C) we find those who have been bitten by animals suspected of being rabid.

During the period extending from November, 1885, to January, 1886, 2,164 human beings bitten by animals proved to be rabid were inoculated at M. Pasteur's Institute in Paris. Of these, 32 died (mortality 1·47 per cent.). On the other hand, 518 persons strongly suspected of rabies were submitted to the same treat-

ment, and of these 3 died (mortality 0·58 per cent.). Notice that in the statistics are reckoned those even who died immediately after treatment, and before, in many cases at least, it could have had any beneficial effect. Amongst the 2,164 people, 214 were bitten in the face and head; of these, 186 had been bitten by animals proved to be rabid. Nine of the latter died, giving a mortality of 4·83 per cent. Notice, however, that 136 of these had been treated by the simple method. The mortality after the simple method amounted, therefore, to 6·61 per cent. Not satisfied with these results, M. Pasteur inoculated 50 by the intensive method; none of these 50 patients died. The mortality amongst people bitten in the hands was 1·22 per cent.; amongst those bitten in the limbs and body, 0·66 per cent., whereas the lowest mortality in persons not treated is 15 per cent.

Before proceeding with the statistics of the Pasteur Institute, I must say a few words of the statistics published in other countries, for the value of any particular mode of treatment is better judged when results obtained by independent observers are examined. Antirabic institutes have been established in a great many countries, and I give you the results as far as known.

Bujwid in the last six months of the year 1886 inoculated 104 people bitten by animals proved to be rabid, or which were most probably so. He lost 1 patient. He then tried a weaker treatment on 193 people; 8 of these died, amongst them being all those who had been bitten in the face. M. Bujwid then determined to give the intensive treatment a trial. He inoculated 370 people bitten by animals undoubtedly rabid; 4 of these were bitten by wolves in the face, 30 in the face by rabid dogs. All these 370 people are alive now, more than one year after the last inoculation. M. Bujwid, in a private letter to me dated July 29th, 1889, tells me that he has inoculated 146 people this year, of whom 1 has died. He also tells me that in his part of the country, and during his time of office at Warsaw, 31 people who were not inoculated died of rabies, although, as he remarks, very few people refuse to be inoculated nowadays after having been bitten.

At St. Petersburg, 484 people were inoculated from July 13th, 1886, to September 13th, 1888. The mortality is somewhat higher, being 2·68 per cent.

At Odessa, Dr. Gamaleïa inoculated 324 people in 1886 by the simple method, mortality 3·39 per cent. In 1887, he inoculated 345 people by the intensive method, mortality 0·58 per cent., whilst in 1888 the mortality amongst 364 people amounted to 0·64 per cent. Dr. Bardach, the present director of the Institut Antirabique of Odessa, has been kind enough to send me the following information. Twenty-six people were inoculated after being bitten in the face by dogs proved to be rabid; of these one child, 7 years

old, died. It is only fair to state that this unfortunate child arrived at Odessa fourteen days after the bite, and that it died on the nineteenth day after being bitten—that is, on the fifth day of treatment, before the latter would have produced any effect. All the patients who recovered had been most fearfully bitten, one of them having had the face almost torn off by eight dreadful bites, and bitten eleven times in the hand besides; another of them having had thirteen deep wounds inflicted by a rabid wolf in the face. Of the 333 other people inoculated by Dr. Bardach only two died (mortality 0·63 per cent.). Among the successful cases was one with thirty deep wounds, the results of bites from a wolf proved to be rabid. Among the 333 above-mentioned were 7 men who had never been bitten, but who insisted on being inoculated as a preventive measure (mortality *nil*).

At Moscow Dr. Gwozdreff inoculated 107 persons in 1886 by the simple method (mortality 8·40 per cent.). In 1887, with the intensive treatment, the mortality was 1·27 per cent. amongst 280 inoculated people. Dr. Jules Goldendach (Chef de l'Hôpital Empereur Alexandre III. at Moscow), in a private letter, informs me that at Moscow, during the year 1888, 431 persons were inoculated according to M. Pasteur's method; 328 were bitten by rabid animals (mortality 1·82 per cent.), whilst of 70 bitten by wolves 10 died (mortality 14·28 per cent.); 3 of the deaths occurred in patients bitten in the face and head. One of them died only ten days after the treatment was finished, the 2 others dying during the progress of treatment, that is, before the preventive inoculations could have had any effect; 7 of the 11 deaths following wolf bites occurred in people bitten in the face and head, whilst 8 of them took place either during the progress of treatment or within 14 days after the last preventive inoculations, that is, 15, 19, 21, 24, 27, 28, 33, 44 days after the bite. Of the two others, 1 died 45 and the other 51 days after being bitten.

These Russian statistics are extremely interesting, for a great many of these patients were bitten by rabid wolves, and we know that after bites from these animals the mortality in non-inoculated people varies between 60 and 64 per cent. Gamaleïa, in 1888, collected 119 cases of persons bitten by wolves and inoculated according to M. Pasteur's methods; of these, 8 died (mortality 6·72 per cent.). M. Pasteur's treatment, therefore, saved 63 of his people from a painful death.

In Italy, at Turin, Dr. Guido Bordoni Uffreduzzi has inoculated 531 persons, 486 patients having been bitten by animals undoubtedly rabid. Of these 10 died (mortality 1·88 per cent.). Here, again, we can judge of the value of the intensive treatment as compared with the simple method, for, on examining Dr. Uffreduzzi's statistics, we find that he submitted 373 persons to the simple treatment and that 9 of these died (2·54 per cent.); whereas

of the 158 persons inoculated by the intensive method only 1 perished (0·56 per cent.). Of 43 patients bitten in the face and inoculated by him he only lost 1. At Lisbon Dr. Baratieri inoculated 335 persons up to November, 1888, and lost 2 patients (mortality 0·59 per cent.).

Dr. Luigi di Blasi has kindly sent me the following account of his inoculations at Palermo. He has inoculated 343 persons since March, 1887, 66 being treated by the simple (mortality 3·03 per cent.) and 277 by the intensive method (mortality 0·72 per cent.); 170 patients had been bitten by animals proved to be rabid. Of 21 patients bitten in the face 1 died; whilst of the 322 patients bitten in various parts of the body 3 perished.

At Naples Professor Cantani, assisted by Drs. di Vestea and Zagari, has inoculated 347 people, of whom 296 had been bitten by animals proved to be rabid (mortality 1·72 per cent.). It is noteworthy that, during a period of seven months, Professor Cantani had to close his antirabic institute for want of funds, M. Pasteur's opponents being very powerful at Naples. During that period, however, 9 persons died of rabies at Naples, and the Pasteur Institute had to be reopened.

At Constantinople, 34 persons had been inoculated up to November, 1888, of whom not one has died.

At Havana, Dr. Tamayo has inoculated 170 persons (mortality 0·60 per cent.).

I have shown you now conclusively, I hope, that M. Pasteur's treatment has given good results in other countries, and when applied by independent observers. Let us now return to M. Pasteur's own statistics. The following four tables will, better than any words of mine, show you the results of his inoculations:—

TABLE I.—*January 1st to December 31st*, 1887.

	A.	B.	C.
No. of persons inoculated	1778	1501	277
Mortality *a.*	1·34 per cent.	1·52 per cent.	0·78 per cent.
,, *b.*	1·12 ,,	1·26 ,,	—
,, *c.*	0·73 ,,	0·93 ,,	Nil.

TABLE II.—*Patients bitten in the Face and Head, and having undergone M. Pasteur's Treatment in Paris during the year* 1887.

	A.	B.	C.
No. of persons inoculated	145	127	18
Mortality *a.*	7·61 per cent.	7·87 per cent.	5·55 per cent.
,, *b.*	4·18 ,,	4·72 ,,	Nil.
,, *c.*	2·06 ,,	2·51 ,,	Nil.

TABLE III.—*January* 1*st to December* 31*st*, 1888.

	A.	B.	C.
No. of persons inoculated	1626	1371	255
Mortality *a.*	1·16 per cent.	1·31 per cent.	0·39 per cent.
,, *b.*	0·79 ,,	0·94 ,,	Nil.
,, *c.*	0·55 ,,	0·65 ,,	Nil.

TABLE IV.—*Patients bitten on the Face or Head, and having undergone M. Pasteur's Treatment during the year* 1888.

	A.	B.	C.
No. of persons inoculated	123	109	14
Mortality *a.*	7·33 per cent.	8·25 per cent.	Nil.
,, *b.*	4·80 ,,	5·41 ,,	Nil.
,, *c.*	2·44 ,,	2·75 ,,	Nil.

Explanations.—Column A. in each table includes all the cases inoculated at the Pasteur Institute during the year. Column B. includes only patients bitten by animals proved to be rabid at the time they inflicted the wound. (This corresponds to columns A. and B. in M. Pasteur's own tables.) Column C. gives the number of patients bitten by animals which, though presumably rabid, could not be proved to have been so.

Mortality *a.*=Total mortality, including patients dying during the progress of treatment. Mortality *b.*=Mortality after those who died during treatment have been excluded. Mortality *c.*=Mortality after those who died within fourteen days after the completion of treatment have been excluded. *The lowest mortality in people bitten by rabid animals and not inoculated amounts to* 15 *per cent. at least.*

One remarkable fact in this connection is that in the year 1887 350 people were bitten in Paris by rabid animals; 306 of these people were inoculated by M. Pasteur; 3 of them died=0·97 per cent.; 44 trusted to luck, and declined to be inoculated, and of these 7 died. Mortality, 15·9 per cent. These facts were elucidated by careful inquiries made by Dr. Dujardin-Beaumetz, who is not in any way connected with the Pasteur Institute.

There is one question which I have not touched at all as yet, and it is this: Are there any cases on record in which it can be proved that death has followed as the result of M. Pasteur's treatment? I say, and I say it without the least hesitation, there are no such cases on record. Indeed, a great many of the men working under M. Pasteur in Paris, in the rabies department of his Institute, have been inoculated as a preventive measure. In fact, all the medical men, assistants in that department, who are skilled both in bacteriology and clinical medicine, have been inoculated, together with the laboratory attendant. Many medical men have done the same without feeling any evil effects either then or afterwards.

What are we to conclude from this? What is our answer to the question which was put in the first place? I think it is simply this: "If I or one of my patients were bitten by a rabid dog, or by a dog suspected to be rabid, or if I held an official post in an

antirabic institute, I should at once go myself, or send my patient to be inoculated." And that is the advice which M. Pasteur and all those who work with him give, and not only give, but have themselves followed.—*British Med. Journal, Sept.* 21, 1889, *p.* 637.

2.—ON ALBUMINURIA IN ITS RELATION TO LIFE INSURANCE.

By F. W. Pavy, M.D., F.R.S., Physician to Guy's Hospital.

[The following excerpt is taken from a paper read in the Section of Medicine at the Annual Meeting of the British Medical Association, 1889. (See also *Synopsis* of this volume for Drs. Johnson, Gairdner, and Saundby's remarks on this subject.)]

Albuminuria sometimes occurs as a transient phenomenon. Certain conditions of a passing nature are recognised as sometimes productive of albuminuria which disappears with the removal of the condition. If the condition is a morbid one the albuminuria partakes of the significance of the state that has given rise to it, and the consideration consequently becomes merged into that of the exciting cause upon the degree of importance of which the prospect to be looked for will depend. There are other conditions in themselves not to be spoken of as morbid, but constituting only ordinary conditions of life which, from the evidence of recorded observation, may prove productive of albuminuria. An unusual susceptibility to influence may exist or the condition may be carried beyond the ordinary degree of tolerating power. Forced exercise is mentioned as one condition. In the case of Weston, the great American pedestrian, the production of an albuminous state of the urine upon one occasion occurred under my own observation. It was with his first pedestrian feat in this country, in which he undertook to walk 115 miles in twenty-four consecutive hours. The state of the atmosphere was against him, and he was much distressed by his performance. The urine passed an hour after the finish was albuminous, and contained hyaline and granular casts of tubules unaccompanied with blood corpuscles. Twelve hours later it was found to have resumed its normal condition. Severe mental strain, as with candidates at examinations, is enumerated as another source of temporary albuminuria; immersion of the body in cold water another. Dr. Barnes says: "When physician to the Dreadnought Hospital, I saw several cases of transient albuminuria from sudden immersion in cold water." Further, under certain circumstances, the ingestion of food may constitute a determining agency. But transient albuminuria need not detain us. It is sufficient to find that the case is only of a transient nature, and, all other circumstances being favourable, it may be disposed of by regarding the prospects as of an ordinary character; at least, such is the view I should myself take.

It is where the albuminuria is not of this transient kind that we encounter a more difficult question to deal with, and my own experience would suggest that it will be convenient to group the cases under three heads. The three groups are: (1) cases in which traces only of albumen are observed; (2) cases in which a notable amount of albumen exists, and is always present; (3) cases in which a notable amount of albumen is found at one period of the twenty-four hours, and none at another, or, in other words, cases which possess a cyclic character.

Before speaking of these groups, it must be stated that in every case as a first consideration there must be an absence of all the elements, apart from the presence of albumen, of Bright's disease to justify the question of a favourable view being entertained. The albuminuria must constitute the only factor present to admit of the case being regarded as an open one for consideration. It is necessarily understood that the mode of testing is such as to afford an infallible indication to start upon.

A careful survey of all the collateral circumstances is therefore called for, and these are the points to which attention requires to be given: whether there is anything in the family or personal history suggestive of the existence of renal disease. It is known that Bright's disease occasionally runs in families. Is there a history of antecedent nephritis, gout, lead poisoning, or conditions that would lead to lardaceous disease? Is the age such as to favour the presumption of organic disease? Whilst simple functional derangements are common in early life, structural alteration becomes more common as a source of deviations from the ordinary state in proportion as age advances. Has there been the slightest evidence of œdema, and is there any unnatural pallor? The question of persistent headache, vertigo, and any kind of fit must be inquired into. Is there impaired or disordered vision? If so, by ophthalmoscopic examination it must be ascertained whether the changes in the retina and optic disc belonging to Bright's disease are discernible.

Does the examination of the cardio-vascular system reveal by such signs as hardness of pulse, thickened artery, undue cardiac impulse, accentuation of the aortic second sound, and reduplication of the first sound at the apex the existence of high arterial tension? Has there been anything of the nature of albuminuric dyspnœa, or palpitation?

A frequent feature of renal disease is anorexia, amounting, it may be, to an actual aversion to food, especially meat, and there may be with it nausea, vomiting, and a disposition to diarrhœa. Another feature is a disposition to inflammation of the serous membranes; but should these conditions exist, the case is scarcely likely to allow a doubt to prevail as to the manner it should be dealt with in relation to life insurance.

The state of the urine beyond the presence of albumen will require attention. An occasional large quantity with low specific gravity is not a matter of import, the permissible inference being that a nerve, or some other temporary state, has given rise to it. As an habitual occurrence, however, it may possess great significance, and will suffice to excite suspicion of grave disease. An examination microscopically will suggest itself as absolutely indispensable. No opinion, unless other circumstances are sufficient by themselves to lead to an adverse one, should be given without it. Blood corpuscles will prompt delay and further inquiry. Casts of renal tubules may be spoken of as standing prohibitory, but the absence, on the other hand, of casts does not imply the non-existence of renal disease; our task would be much lightened if it did. Experience, indeed, is not very rarely supplying instances where the diagnosis of Bright's disease is permitted, and no casts are at the time to be found in the urine. It must not be omitted to be borne in mind that casts are liable exceptionally to be come across derived from the seminal tubules. They closely resemble renal casts with a very transparent character. They may be found accompanied or unaccompanied by spermatozoa. Recently, in a case where advice was sought upon the ground of spermatic trouble, I observed them in several specimens passed at distant periods. There was nothing besides to lead to the suspicion of renal disease; but, had there been, they might easily have been taken as affording supporting evidence. In another case there actually had been recurring attacks of nephritis associated with tonsillitis, put down to the effects of taking cold. The case was, therefore, a complicated one, but at the time of observation the urine was free from albumen, and the single specimen in which the casts were found also contained spermatozoa.

Such are the points that require to be looked to as a collateral proceeding in framing a conclusion respecting the prospects in a case where albumen has been found in the urine, and attention to them may alone suffice to establish a diagnosis of Bright's disease, where, as may rarely happen, the urine may be observed on testing to give no reaction of albumen.

The first of the enumerated groups is that in which traces only of albumen are present. My own experience leads me to say that it is not to be regarded as a specially remarkable circumstance to find urine containing traces of albumen without the case being such as to justify the conclusion that anything of the nature of renal disease exists. It will be understood that what is comprised under the head of traces of albumen is from the indication afforded by the employment of a delicate mode of testing, but one, nevertheless, from which the information given is to be regarded as free from fallacy, which some of the tests are open to. With traces of albumen thus found, and with everything else bearing upon the point

pronounced to be satisfactory, after a full and careful investigation of the case, I should not consider the prospects invalidated. The granular kidney is the form of renal disease which is especially associated with small amounts of albumen; and what calls, therefore, for most consideration in the investigation of the collateral aspects of the case is attention to the main coincident conditions belonging to this affection, namely, increased quantity of urine, low specific gravity, and morbid changes in the cardio-vascular system.

The second group of cases is that in which a notable amount of albumen exists and is always present. Instances are sometimes come across of the description named where no history of nephritis can be elicited, no casts of tubules discovered, and none of the general symptoms of Bright's disease recognised. I am not prepared to state that a definite opinion can be given about the future in these cases. I have reason to believe there are some which run on without any serious results arising, but I do not consider that medical knowledge is at present in a position to enable us to differentiate these cases from those which may become developed into well-marked Bright's disease. It is not sufficient that there is an absence of casts of tubules and cardio-vascular changes, for frequently in established Bright's disease our examination fails to disclose the presence of casts; and it is not by any means always that we come across evidence of a positive nature from the heart and arteries, notwithstanding there may be sufficient upon other grounds to diagnose the existence of the disease. It would be only in a case that had been under distinct observation for a considerable time, without anything wrong becoming developed, that I would venture to look favourably upon the prospects, and even then I should consider that a decidedly more than ordinary risk existed. Without saying more, I submit these cases for the opinion of others to be expressed upon them.

The third group comprises cases with a notable amount of albumen appearing and disappearing in such a manner as to give the case a cyclic character.

Of these cases I have personally had a somewhat extensive experience, and since grouping and describing them under the head of "cyclic albuminuria," they have been freely and widely discussed in the profession. They are admittedly cases of functional albuminuria, but also something more—namely, functional albuminuria, with a special, sharply defined, and readily noticeable character, which groups them together into an easily recognisable class standing in a distinct position by themselves. Functional albuminuria is the "generic" and cyclic albuminuria a "specific" group contained within it. The distinguishing character belonging to the case is that without evidence from other sources of the existence or pre-existence of renal disease, albumen, under the

ordinary course of daily life, is at one period of the day present and at another absent, and that this recurs day after day in exactly the same order. At the period of rising in the morning there is no albumen to be discovered. In an hour or two's time albumen shows itself increasing in quantity for awhile, and then as the day advances declines and becomes usually entirely lost before bedtime is reached. Remaining absent during the night it returns after rising the next day, and subsequently follows the same order that had been previously observed. To call the case "cyclic" is simply to express an outwardly observable feature belonging to it, and the condition may run on with its repeated diurnal variation, not only for weeks or months, but also, it can be said, for years, without anything further becoming noticeable.

I have committed myself to a definite opinion with regard to the prospects in these cases, and the opinion I expressed in 1885 is sustained by the experience derived from the extension of time up to the present date and by the additional cases I have seen. It is now about ten years that my attention has been fixed upon the point and that I have made a close study of the subject. Expressing myself upon this foundation, I feel it warrantable to state that with a sufficiently full and careful inquiry it may be ascertained whether the case falls or not into the cyclic functional group, and that, if it does so, a favourable opinion of the future may be given. Speaking with reference to life insurance, the opinion to be given is founded upon the same basis as that which guides to an ordinary medical prognosis. In the latter case, however, it may be allowable to incline more to optimism than in the former, where there is not the outside pecuniary interest placed at stake upon our opinion as there is when the question of life insurance is involved. The condition existing is not the ordinary one. It may be taken as standing in the position of a border line with a serious outlook on the one side and a favourable one on the other, and everything depends upon whether, by the light of other considerations, it is viewed rightly or not. Under these circumstances, if insurance companies should decide to admit these cases as eligible for acceptance, it is not unreasonable that an additional premium should be demanded to meet the possible contingencies, whether from diagnosis or otherwise, that may arise.

Chemistry has shown that several modifications of albumen exist, and the number has been an increasing one with the recent advances made by research. The usual form met with in renal disease is serum albumen, which is precipitable by mineral and not by the organic acids. It is certainly the exception and not the rule in cases of structural disease of the kidneys to find that anything in the shape of proteid matter is thrown down by the organic acids. In cyclic albuminuria, on the other hand, my experience leads me to say that it is the rule instead of the exception for the

addition of an organic acid to be followed by the production of a precipitate. What is usually observed in this class of case is that two kinds of albuminous matter are present—one which, like alkali-albumen and mucin, is precipitated by an organic acid, and the other which corresponds with serum albumen. I submit the question of the chemical nature of the urinary albumens as far as it bears on diagnosis for further elucidation by those taking part in the meeting.

The remark I have in conclusion to make is that the safety of an opinion will depend upon the completeness and carefulness with which the investigation of a case is made. I designedly use the word "investigation," for something more than the kind of examination ordinarily made for life insurance purposes is needed in the class of case that has been referred to.—*British Medical Journal, Aug.* 24, 1889, *p.* 417.

3.—COMPARATIVE VALUE OF ANTIPYRIN, ANTIFEBRIN, AND PHENACETIN AS ANTIPYRETICS.

By Surgeon-Major A. Crombie, M.D., Surgeon-Superintendent, General Hospital, Calcutta.

[Dr. Crombie sums up his observations made upon seven cases, treated systematically by one or other of the substances named above, as follows.]

First.—As regards efficacy, antipyrin comes first, and there is little to choose between antifebrin and phenacetin in the doses in which I have prescribed them.

Second.—That as regards safety the advantage lies with phenacetin. I have never seen a subnormal temperature result from the use of that drug. I have seen subnormal temperatures as the result of the use of antifebrin, but never collapse, which I have once seen from the use of antipyrin.

Third.—As regards rapidity of action, antipyrin, probably on account of its solubility, comes first, antifebrin second, phenacetin third. The fall after the use of phenacetin is more gradual, and the minimum is not reached for three, four, or even five hours after the administration of the drug.

Fourth.—As regards duration of effect the advantage lies with phenacetin.

Fifth.—As regards certainty of action, I would quote them in the same order as that of rapidity—antipyrin, antifebrin, phenacetin. And here let me give a warning against the use of phenacetin tabloids. They are so hard as to be practically insoluble in the stomach, or at least to be so slowly dissolved that a very small quantity of the drug enters and circulates with the blood at one time, not sufficient to affect the temperature. It should be prescribed either in powder or in lozenges, which are soft and friable.

Sixth.—As regards inconveniences, in the climate of India phenacetin is followed by just as profuse sweating as either antifebrin or antipyrin, and this, to my mind, is the great drawback in the use of antipyretics, patients having to change their clothing once or twice in a night after the use of any of these drugs. Whether or not an antipyretic will yet be found which will be capable of safely reducing abnormal temperature without causing profuse perspiration remains to be seen, but as yet we do not possess one.

From the examples I have given, it is clearly to be seen that the use of these drugs does not in any way shorten an attack of fever. Enteric fever goes on to its natural term of three or four weeks, and has its relapses whether they are used or not—and it is probable that in simple continued fever (for I am old-fashioned enough to believe that that is a perfectly appropriate name to employ for a large number of cases which come under our observation), and in remittent fever, they have no abortive effect. I am inclined, however, to think that there are a certain number of cases of fever which have been brought to a sudden termination by their use. I allude to those cases in which there is a sudden attack of high fever after a chill or exposure to the sun, in which you give a dose of antifebrin or phenacetin, which is followed by profuse sweating and a cessation of all further febrile symptoms. I think that such cases are more frequent in my practice since the introduction of these drugs than formerly.

If, however, in a case of remittent and continued fever, whether typhoid or not, antipyretics do not cut short the fever, do they do any good—or do they at the same time, while temporarily relieving the symptoms, prejudice the progress of the cases? In other words, do they alleviate one of the symptoms at the cost of the safety of the patient; and what is the value of the relief they give?

In the first place, in cases of hyperpyrexia, where the life of the patient is threatened by the height of the fever itself, we have no choice—we must reduce the temperature at all costs; but in such cases where it is possible, and it is generally so in the better class of patients, except when the patient and his friends are opposed, through ignorance and prejudice, to such a course, it is generally best and safest to do so by cold packing. When this cannot be done, then we have no choice but to use drugs, and in such cases I use antipyrin, as being most rapid and certain. But when the temperature is not so high as to immediately of itself endanger life, I think we are still bound to reduce the temperature; for it has been found that a temperature of 103° and upwards is inimical to digestion, and may lead to those structural changes, especially in the muscular tissue of the heart, which constitute the great danger of long-continued pyrexia.

The reduction of the temperature below 103°, whenever that threatens to be of any duration, becomes a duty. The question now is—how can you do so most safely? I would still answer that it can be done most safely by means of cold packing, but there are practical difficulties in carrying out such a practice repeatedly, in a long case of fever, that force you to use drugs, and so it comes to be a choice of antipyretics. This now lies between antifebrin and phenacetin, and you will find, as I have done, that sometimes one and sometimes the other will be preferred. If you have chiefly in your mind caution and the avoidance of any chance of collapse, you will probably find that phenacetin will answer your purpose best. If, on the other hand, you think the case requires prompt interference you will probably prefer antifebrin. In my own practice this is the rule I now follow, and I never, if possible, allow the temperature to reach 103°, or at least to remain above 103° for any length of time. I have always in my mind the impossibility of digesting and absorbing nourishment when that temperature is reached, and also the risk of nutritional changes in the heart which follow long-continued high temperatures; and it seems to me that cases of enteric fever systematically treated in this way have a milder course, fewer complications, and a quicker convalescence than was formerly the case under the old treatment of diaphoretics and diuretics in which long-continued high temperatures were permitted.

It might be thought racking of the system and thwarting of the natural rise of temperature by these drugs would in some way be prejudicial, but I have not found it so. I have not seen any appreciable ill result from it. The sweating also might be thought weakening, and it is certainly unpleasant, but I think it is compensated by the feeling of relief which the fall of temperature brings with it. In such a matter I have consulted the feelings of the patients and found them in favour of the drug and the sweating.

There is one peculiarity which phenacetin does not share with the other antipyretics. I allude to a soothing and soporific effect which it undoubtedly possesses, so much so that in cases of slight feverishness accompanied by insomnia and great restlessness, small doses of three or four grains of phenacetin, not sufficient, even in this climate, to produce perceptible diaphoresis, ensure a quiet, peaceful, and sleepful night, with no headache in the morning.

To conclude, in heat apoplexy, sunstroke, and hyperpyrexia generally, antipyrin is indicated. In temperatures of 103° to 105° antifebrin or phenacetin, in temperatures below 103° the preference should be given to phenacetin.

Other uses of antipyrin, etc., are not alluded to in this paper, which I have confined to the consideration of their antipyretic action alone.—*Practitioner, October*, 1889, *p.* 269.

4.—ON THE THERAPEUTIC ACTION OF SENNA PODS.

By A. W. Macfarlane, M.D., Examiner in Forensic Medicine in the University of Glasgow.

My friend Dr. Thomas Keith mentioned to me, eighteen months ago, the efficacy of senna pods as a laxative in cases of obstinate constipation. A day or two afterwards I prescribed them in a case which seemed suitable for their administration, and was so agreeably impressed with their effects that, notwithstanding I had discarded the use of senna in most of its forms for several years, I resolved to test the utility of the pods in various cases. As it was early apparent that their properties differed vastly from those of senna leaves, I endeavoured, while estimating their value, to ascertain wherein the disparity of their action lay.

Let me briefly premise that an infusion of senna leaves has a characteristic and nauseous taste and odour; that it acts as a mild acrid or drastic purgative, exciting increased peristaltic movements in the small intestines, which, hurrying the contents quickly through the colon and rectum, cause the evacuation of watery stools in four or five hours; inducing concurrently, in many instances, hyperemia of the pelvic blood-vessels, which excites or aggravates hemorrhoidal and menstrual losses. Its administration is so commonly attended by griping, tenesmus, and flatulence, that it is seldom prescribed except in conjunction with a carminative, these disagreeable symptoms being more marked if the leaves are long infused, to obviate which the time fixed for the preparation of the infusion in the British Pharmacopœia is half an hour. In nursing women the active principles of senna leaves are partially excreted through the milk, giving rise to griping and purging in the infant. On account of the irritating effects, the infusion of senna has long been discarded in cases in which there is any tendency to congestion of the gastro-intestinal canal, to miscarriage, and to hemorrhoids, etc.; and in consequence of its drastic and depressing properties it has been deemed an unsuitable remedy in neurasthenic conditions.

The products of the senna plant, as imported into this country, consist of leaves, stalks, pods, and flowers, with certain other extraneous materials; these are sent to the great prisons to be picked, and the leaves are carefully selected and returned to the druggists, while the other parts are rejected. Senna pods have been so little used in Great Britain, that no reference is made to their medicinal properties in any of the text-books on materia medica or therapeutics with which I am acquainted. They are thus described by the late Dr. Scoresby-Jackson in his Note-book on Materia Medica:—"Legumes, pendulous, flat, slightly enlarged over the seeds, upper margins a little curved, brown, containing from five to eight seeds." The only references to their therapeutical employment which have

come under my notice are as follows. 1. By Dr. James, in the New Universal English Dispensatory, second edition, 1752, page 252: "The follicules or fruit of the sena (*sic*) tree purge in a less degree than the leaves." 2. By Dr. Pereira in his work on the Elements of Materia Medica and Therapeutics, third edition, 1853, vol. ii., part 2, page 1870: "The legumes are much milder in their operation than the leaflets." 3. By F. A. Flückiger and D. Hanbury, in the Pharmacographia, 1874, page 191: "The Arabian and the mediæval physicians of Europe used both the pods and the leaves—preferring, however, the former.....The pods (folliculi sennæ) are still employed in some countries." It is thus apparent that the dissimilarity of action which exists in the leaves and pods, which I recognised, was long ago appreciated. In connexion with the last quotation, I may mention that I have been informed that the pods which are preserved in the sorting process in London are exported to the European continent, and that they are rarely purchased by chemists in this country. As a matter of fact, the majority of chemists do not keep them in stock, and there is at times difficulty in procuring them.

An infusion of senna pods is almost free from taste and smell; certainly it is devoid of the characteristic odour and flavour of "senna." It appears to increase activity in the muscular movements of the whole gastro-intestinal canal, acting quite as much on the colon and rectum as upon the small intestine. It is slower in its action than an infusion of the leaves, but equally certain; an ordinary dose produces without fail one motion, seldom more, of soft consistence, in from eight to ten hours, and without exciting any congestion of the pelvic vessels, or increasing or aggravating hemorrhoidal or menstrual discharges. It is, in short, a reliable evacuant, free from irritating properties such as cause griping and flatulence; and, if the experience of one case is worthy of mention, it does not appear to be excreted through the milk in the nursing mother, for in one such patient the child was unaffected by its use. Administered regularly for several nights in cases of intestinal torpor, it cleans the tongue, increases the appetite and digestion, and promotes natural evacuation of the bowels, so that the quantity taken requires to be decreased, and eventually it can be dispensed with. The cases in which I have found it most serviceable are those depending upon impaired muscular movements, from defective innervation, usually associated with flatulence and intestinal discomfort. It has also proved useful in cases of hemorrhoids, and in constipation in children, as well as in the aged. Like all purgative medicines, the infusion acts better in some persons than in others, and also in the same person at different times; but, after a fairly extended experience of its use, I have not been disappointed in its utility in any one case, nor have I been annoyed by any untoward effects. I am not sanguine enough

to hope that it will meet the exigencies of every case of constipation, but that it is a real addition to our remedies I cannot doubt. It has afforded me better results than any other medicine I have yet used, exceeding in efficacy cascara sagrada; while its freedom from disagreeable taste is a strong point in its favour.

I think I have written enough to indicate that the properties of the pods differ very considerably from those of the leaves. I have, therefore, only to add that I know of no condition which contraindicates their use, being as harmless as castor oil. The dose for an adult is from six to twelve pods; for the young and very aged, from three to six. They are best infused in a claret-glassful of cold water for six or eight hours. Mr. John Borland, F.C.S., late examiner in the Pharmaceutical Society of Great Britain, of the firm of Rankin and Borland, chemists, Kilmarnock, has kindly prepared for me a plain and simple liquid extract of the pods, the dose being from half a drachm to a drachm in a wine-glassful of cold water at bedtime. It has little taste, and it is exceedingly certain in its action, while it possesses the advantage of always being ready for use.—*Lancet, July* 27, 1889, *p.* 164.

5.—ON THE DIETARY FOR DIABETICS.

By Charles W. Purdy, M.D., Chicago, Illinois.

Practically the more completely we are able to eliminate the carbohydrates from the food supply in glycosuria, the more completely shall we be able to bring and to hold the disease under control. First in importance comes the question of bread, some form of which containing starch is permitted in all the diet lists I have seen. Now I do not hesitate to state, without fear of successful contradiction, that all the so-called diabetic flours, breads, and cakes in the market of which I have any knowledge, are loaded with carbohydrates. They are "a snare and a delusion," and have unquestionably shortened the lives of thousands. Most samples of gluten flour, from which the starch is claimed to have been eliminated—or nearly so—contain from 20 to 40 per cent. of starch. I saw in Dr. Pavy's laboratory in London a few months since an analysis of one of the so-called diabetic flours on sale in our markets, which showed the starch contents to be nearly 60 per cent. Long before I became aware of these facts, I found that I could not control typical cases of diabetes if I permitted the use of commercial flours so-called "diabetic." I need scarcely add that with the above figures before me I have discarded them altogether.

The withdrawal of bread from the diet usually constitutes the most serious deprivation the diabetic patient has to encounter, although the appetite for bread is more largely a matter of taste and habit than of necessity. Some patients become quite reconciled

to the change after a few weeks and do not mind it, but usually the craving for bread of some kind remains more or less strong, and will not be supplanted by the use of other foods. In the latter class of cases, if strict dieting be demanded, I permit the moderate use of bread made from almond flour as first practised, I believe, by Dr. Pavy. The almond is absolutely free from starch, but contains about 6 per cent. of sugar. The latter may be eliminated by boiling the meal in acidulated water for an hour or so and then straining it. The almond meal is not on sale in the markets; the large percentage of its contained oil (50 per cent.) renders it unfit for keeping sufficiently long for commercial purposes. In my own practice I direct the meal to be made as required by means of mills especially constructed for the purpose. Almond flour, when beaten up with eggs, may be raised with the aid of a little baking powder, and baked in small tins in an oven, and the resulting bread is relished by most of my patients as equally palatable with ordinary bread. It should be borne in mind that almond bread, as indeed all substitutes for common bread, should be used in moderation; otherwise patients deprived of other luxuries of food fly to the permitted bread with an avidity seemingly born of the thought that it is indeed the "staff of life" instead of merely a substitute therefor. To make a substituted article of diet go further than the original one is more than is to be expected, even in these practical days, and yet I am led to believe that the failure in accomplishing this in the case of almond bread has led to its unjust condemnation by some in these cases.

The next question of importance in diet—and one upon which authorities greatly differ, is the propriety of the use of milk in diabetes. Dr. Donkin, perhaps the most enthusiastic advocate in its favor, published a book in 1871, which was devoted to the exclusive use of milk as a means of treating this disease. In England Dr. Donkin's so-called "milk cure" has met with few, if any, weighty supporters; on the contrary, many advocate the total exclusion of milk from the diet. My own experience in the use of milk in the treatment of diabetes began nine years ago, since which time I have made thorough and varied trials of it, both as an exclusive and as an adjunct diet. My conclusions are that milk is successful chiefly—perhaps only—in milder forms of the disease. Such cases are, as a rule, controllable by moderate limitations of diet, which offer greater range and nutritive power than does milk. In the more severe type of the disease I have repeatedly found when the diet was rigidly restricted, save in the use of milk, that the total exclusion of the latter without other change caused a prompt reduction, and often the disappearance of sugar from the urine.

Milk contains a very considerable amount of sugar (lactine), about half an ounce to each pint, and Dr. Pavy observes that this

animal carbohydrate "comports itself in the intestinal canal precisely as does grape sugar." There can be little doubt, therefore, that in the more pronounced type of diabetes requiring a strict diet, milk should be excluded from the list.

There is a form of glycosuria that occurs in obese and overnourished subjects, in which the amount of sugar in the urine is usually small, and probably largely due to the ingestion of more carbohydrate than the system is able to appropriate. Such cases are benefited, and indeed often cured, by a course of fasting. The "milk cure," consisting of exclusive use of skimmed milk is likely to benefit such cases because it is, in fact, a system of starving.

Skimmed milk alone is not sufficient to long maintain proper nourishment to the organism. In pronounced diabetes of central origin, where the assimilative powers of the system are weakened, and more or less emaciation has already set in, it would, therefore, seem absolute folly to confine the patient to skimmed milk, for under such circumstances death from inanition must be but a question of a short time. Sir Wm. Roberts records three cases which he subjected to the "milk cure" with the result that they all succumbed in a short time. My own experience is similar to Dr. Roberts', save that I ceased to use it as an exclusive diet after seeing my first patient rapidly sink under its employment. It is important to bear in mind that lactine is confined to the whey, and consequently the other derivatives of milk—as cheese, cream, curds and butter—are unobjectionable.

Another food of animal source contraindicated in diabetes is liver. The liver of animals contains considerable sugar, as might be expected, considering the glycogenic function of that organ. Not only should the liver of quadrupeds be avoided, but certain fish, especially oysters and the interior of crabs and lobsters, since they possess proportionately very large livers. It has been claimed that this precaution is more in keeping with theory than practice, but a sufficient answer is furnished in the fact that analyses of oysters have shown as high a range as 10 per cent. of sugar.

The very wide distribution of starch and sugar throughout the vegetable kingdom renders our selection of food from this source limited indeed. In strict dieting we are obliged to avoid nearly the whole list of table vegetables. One class only are we at all safe in drawing upon—greens—and these with caution. Green vegetables fortunately consist mostly of cellulose and contain little, sometimes no starch or sugar. They are rendered still safer if boiled before being eaten; the hot water further ensuring the absence of starch and sugar.

The starch and sugar composition of vegetables varies somewhat. This variation depends much upon the degree of cultivation, and the nature of the climate and soil in which they are produced. As a rule, a high degree of domestic cultivation favours

an increase of starch and sugar, while high temperature and sunny skies have an opposite tendency. Among the least objectionable vegetables may be mentioned spinach, lettuce, olives, cucumbers, mushrooms, Brussels sprouts, turnip tops, water-cresses, cabbage, cauliflower, and the green ends of asparagus. Nearly all nuts are unobjectionable, chestnuts forming an exception.

In the matter of beverages the diabetic patient will scarcely encounter very serious restrictions, since the range permitted includes most of those in domestic use, including many which fall within the line of luxuries. Among these may be mentioned tea, coffee, all mineral waters, pure spirits, as brandy, whisky, gin, and such wines as claret, Rhine wine, and Burgundy.—*Journal of American Medical Association, March* 30, 1889, *p.* 434.

[See also "Strict Diabetic Diet" in the *Synopsis* of this volume of the *Retrospect.*]

DISEASES OF THE NERVOUS SYSTEM.

6.—REPORT OF 14 CASES OF DISEASE OF THE SPINAL CORD TREATED BY THE METHOD OF SUSPENSION.

By David D. Stewart, M.D., Lecturer on Diseases of the Spinal Cord in Jefferson Medical College, Philadelphia.

Case 1.—*Locomotor Ataxia*; *second stage.*—M., æt. 38; symptoms 12 months. Suspension almost daily during two weeks. Marked improvement.

Case 2.—*Locomotor Ataxia; second stage.*—M., æt. 46; symptoms 3 years. Thirty-two suspensions. Marked improvement.

Case 3.—*Locomotor Ataxia; second stage.*—M., æt. 53; symptoms 20 years. Thirty suspensions. Marked improvement.

Case 4.—*Locomotor Ataxia; second stage.*—M., æt. 63; symptoms 7 years. More than twenty suspensions. Improved.

Case 5.—*Locomotor Ataxia; first stage.*—M., æt. 40; uncompleted case. Improving.

Case 6.—*Locomotor Ataxia; second stage.*—M., æt. 48; symptoms 2 years. Twenty-one suspensions. Improved.

Case 7.—*Locomotor Ataxia; second stage.*—F., æt. 49; symptoms 15 years. Ten suspensions. Much improved.

Case 8.—*Locomotor Ataxia; second stage;* F., æt. 45; symptoms 12 years. Eight suspensions. Unable to continue treatment. Improved.

Case 9.—*Primary Spastic Paraplegia.*—M., æt. 37; symptoms 11 years. Forty-five suspensions. Improved.

Case 10.—*Primary Spastic Paraplegia.*—M., æt. 38; symptoms 12 years. Thirty-four suspensions. Improved.

Case 11.—*Primary Spastic Paraplegia.*—M., æt. 53; symptoms 12 months. Thirty-four suspensions. No improvement.

Case 12.—*Ataxic Paraplegia.*—M., æt. 40; symptoms 5 years. No benefit.

Case 13.—*Ataxic Paraplegia.*—M., æt. 31; symptoms $3\frac{1}{2}$ years. Suspended about 24 times. Much improved.

Case 14.—*Subacute-dorso-lumbar Meningo-myelitis.*—M., æt. 29. "The pains were of great severity and necessitated the frequent use of morphine for their relief." "The loss of power was absolute." Thirty-one suspensions. Remarkable improvement.

[We give above the headings of Dr. Stewart's cases. The method pursued in all the cases appears to have been precisely the same. For instance, in case No. 1, the patient was suspended in all thirty-six times, usually four times a week, Monday, Wednesday, Thursday, and Saturday being the days chosen. The duration of the first suspension was one minute; the second, one-and-a-half minutes; the third, two-and-a-half minutes; the fourth, three minutes; all the subsequent suspensions were from four to five minutes, usually the latter. He was swung entirely from the ground in all suspensions. The first three suspensions were by the head alone, but so much spinal pain was felt during them that thereafter shoulder-straps were also used, he being directed to raise and lower the arms slowly three to four times a minute.]

The total number of suspensions made in these cases was upwards of 352. An extended analysis of the results obtained is unnecessary. It may be seen by a glance at the histories that, in the tabetics, the symptoms which were first and most strikingly relieved were the ataxia and the lancinating pains; improvement in these occurred in all, and after a very few suspensions; and that, if any relation existed between the early appearance and extent of the improvement and the duration of the disease, it is a direct one; the more chronic cases being those most promptly and decidedly benefited. The improvement in these two symptoms, the most prominent and distressing of the disease, in at least two of the cases (3 and 7) was so prompt and decided that it may well be considered truly remarkable.

Bladder and rectal difficulty, present in two of the tabetics, and increased sexual desire present in one, have disappeared. Diminution in, or loss of, sexual desire, present in five, has improved in but one. Tactile anæsthesia has much improved in three and slightly in one; not at all in four. A somewhat melancholic condition, present in five of the tabetics, disappeared after a few suspensions. This was not due directly to the suspensions, but was rather secondary to the lessening of the pains and ataxia. In none of the eight has the knee-jerk returned, even with reinforcement. In the three spastic cases, diminution in the paralysis, rigidity, and spasm

has been striking in one and slight in another; in the third, on change has occurred in these symptoms. In one of the ataxic paraplegic cases ataxia and paralysis seemed to be lessened after the second suspension. Unfortunately, this improvement was not maintained, possibly because suspension was not persevered in. The other case writes me that there has been marked improvement in gait and pains. In the case of myelitis, the improvement in the paraplegia and in the general condition has been decided. Eye symptoms, where present in the fourteen, have undergone no change.

As these cases are few in number, and have been under treatment by suspension but a comparatively short time, no very definite deductions can yet be drawn as to the exact value of this method in the treatment of degenerative and inflammatory diseases of the cord. It may, however, be safely asserted, from the favourable results obtained in nearly all of the tabetic cases, that suspension is of great service in locomotor ataxia, but, whether palliative merely or actually curative, the time has not arrived for definite reply. It is certainly of use in lateral sclerosis; and, in myelitis, the decided improvement produced in one case, in which absolute paraplegia had existed for over six months, commends its trial in others. That suspension will, even though aided by wisely directed medical and hygienic means, effect a cure in degenerative disease of the cord is, I think, doubtful; but, as an adjunct to other modes of treatment, its utility is beyond question.

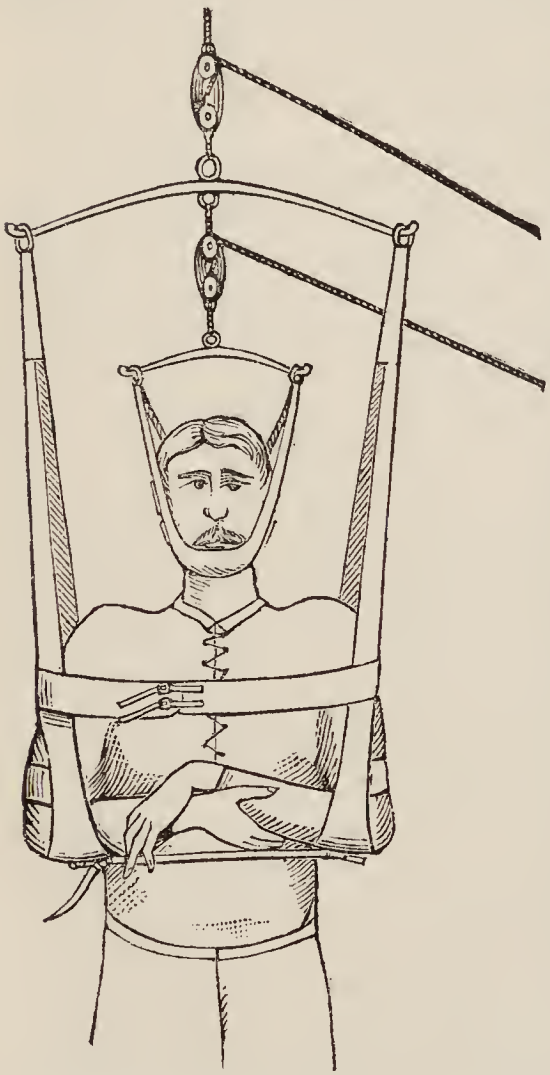
The recent plausible explanation as to the action of suspension in tabes, offered by Althaus, indicates that permanent benefit may result from this method, provided that the further progress of the disease can be arrested by other means, and that it has not advanced to complete destruction of the nerve tubules; and that, even where its advance cannot be thus stayed, temporary good may still be accomplished by suspension. Althaus's ingenious explanation applies equally to other degenerative diseases of the cord than tabes, and if it is true of the chronic degenerations, in which the pathological changes originate in the nerve elements and the overgrowth of connective tissue is secondary, it is, theoretically, far more so of inflammatory processes which, starting in the connective tissue, cause, primarily, at least, far less damage to the nerve tubules. In chronic inflammations of the cord or its investing membranes which are stationary and are encountered before the contracting perineural tissue has, by compression, done more than interfere with the nutrition and conductivity of the fibres, not irreparably damaging their structure, the effect of suspension should be curative; for, by stretching the cord and the thickened and adherent membranes, the inflammatory tissue pressing upon the axis-cylinders will be loosened and broken down, setting free the latter and permitting them to resume their functions.—*Philadelphia Medical News, June* 1, 1889, *p.* 596.

7.—ON AN IMPROVED FORM OF SUSPENSION IN THE TREATMENT OF LOCOMOTOR ATAXY.

By S. Weir Mitchell, M.D., Senior Physician to the Infirmary for Nervous Diseases, Philadelphia.

Suspension in various ways has been so much used in the Infirmary for Nervous Diseases that the novel treatment of ataxia by it has created with us little surprise. A large number of patients are at present using this means, and before long I shall report results; they are so far encouraging.

It has seemed to me, however, that suspension by the armpits is but a stupid plan; for most people it is so painful as to cause the real limit to the time of suspension, which otherwise might be experimentally prolonged. In watching the application of the Russian apparatus, I recalled the ease with which a child may be lifted from the elbows. Out of this thought came the apparatus figured. It has these advantages: It bruises no nerves; does not arrest the circulation; is painless, and can be borne a long time, if we need to use it long, and so makes it possible to learn the value of more prolonged suspension. It will be seen that a separate pulley and cord govern the amount of pull on the head. The lift is made from the elbows, and then the head is drawn upon as may be required.



The apparatus is simply two leather slings for the elbows; a band confines the arms to the waist. (See illustration.) The relative comfort of this means of suspension is really remarkable. By the use of this device we have been able to suspend a person over twenty minutes in perfect ease. To distribute the pressure upon the arms and trunk the vertical straps are widened under each elbow to about four or five inches and reinforced with leather. Sweeping round from the front to the back upright is a wide band which comes against the outer aspect of the upper arm, yet leaving the point of the elbow free from contact. From one

elbow leather to the other and securely riveted to each, both across the front and back, pass stout straps adjusted each by a buckle. Again, across the upper part of the chest another strap encircling the trunk gives additional support—not very essential, but well for nervous folk who fear they may fall.

The adjustment of the head was a vexatious problem, but we have solved that now to our satisfaction by one of two ways. By the second pulley, described above, or by a simple mechanism thus: To the ring of each cheek-piece is attached a stout cord which passes over a hook dependent from the large metal cross-bar and thence by a strap inserted in a buckle made fast to the rear elbow leather one on each side. These hooks are about fourteen inches apart. With either of these mechanisms we can raise a patient from the ground by his elbows, and then proceed to adjust the amount of pull needed for his head.—*Med. News, April* 13, 1889.

8.—ON THE PREMONITORY SYMPTOMS OF ALCOHOLIC PARALYSIS—WITH ILLUSTRATIVE CASE.

By James Ross, M.D., F.R.C.P., Physician to the Manchester Royal Infirmary.

Nothing helps us so much in the treatment of a disease, if it be of such a nature as to be capable of cure or amelioration, as an early recognition of the symptoms of its inception. This statement, true with regard to most affections, assumes additional significance when we have to treat a disease like alcoholic neuritis, which can be readily cured in its early stages by the simple withdrawal of the poison, without any special treatment, but which, when fully established, may resist all treatment or prove rapidly fatal.

Alcoholic paralysis, on attaining to the stage of double wrist and ankle drop, loss of the patellar-tendon reactions, and high-stepping gait, is now readily recognised by every moderately well-informed practitioner, and accurate descriptions of it have found their way into ordinary text-books of medicine. It is, therefore, quite unnecessary for me to give in this place a detailed description of the condition. I will also pass over such well-known signs of alcoholic poisoning as a bloated face, lightning-like and neuralgic pains in the extremities, morning retching, and muscular hyperæsthesia, in order to direct special attention to three symptoms which I believe to be hardly ever, if ever, absent as forerunners of this form of paralysis, although they are by no means peculiar to poisoning by this agent, being met with in other forms of peripheral neuritis. These symptoms are: (1) Disorders of the tactile sensibility of the extremities, which patients usually describe as numbness of the fingers and toes; (2) vasomotor spasm of the extremities, named by Raynaud "local asphyxia," and which the patients refer to as "deadness" and "coldness" of the fingers and toes;

(3) severe cramps, which are most frequent and severe in the muscles of the calf, although these muscles are by no means the exclusive seat of them.

[We reproduce here the narrative of only one of Dr. Ross's five illustrative cases.]

Case 1.—G. C., aged fifty-one years, a lawyer's clerk, states that he has drunk freely of beer, but only occasionally indulged in whisky or brandy. His lower extremities, his body (especially over the loins and buttocks), and his left upper extremity are œdematous, but there is little or no swelling of his face or eyelids, even in the morning. The area of cardiac dulness is enlarged; the apex is displaced slightly downwards and outwards; the first sound at the apex is impure, the sound at the base is highly accentuated; and the action is very irregular; while the pulse beats 110, and is feeble and intermittent. Scattered sonorous rhonchi are heard over both lungs, and the patient expectorates a moderate quantity of frothy mucus. The urine contains a small quantity of albumen, but its specific gravity is 1020, and it deposits a considerable quantity of urates on cooling. The patient's grasp is feeble, and he experiences some difficulty in performing special movements with the fingers and thumb, but there is no distinct wrist drop. The patient is very feeble on his legs, but there is no ankle drop, and no distortion of the toes. The patellar-tendon reactions are, however, absent, and the muscular masses of the extremities are very tender to pressure. The diagnosis of this case is that, although the urine contains a little albumen, the anasarca is due, not to renal disease, but to dilatation of the heart caused by the abuse of alcohol, the condition being aggravated by the presence of a little bronchitis.

He states that, for the last three years, when he got to the office in the morning his fingers were so numb that on closing his eyes he could not tell whether he held the pen or not, and he experienced considerable difficulty in buttoning his clothes. He had to rub his hands together for about ten or fifteen minutes before he could write. His feet were also so numb that he could not feel the floor; they felt as if "sensation was out of them." He was afraid of closing his eyes whilst washing lest he should fall forward. On getting up in the morning, the tips of his fingers up to the first joints became of a dark livid colour, and he had to dip them in warm water in order to get the colour back and to warm them. He had a great dread of touching cold water in the morning. His feet were also so cold that he had to stamp them frequently on the floor to warm them. When he began to write in the morning, his forefinger and thumb often became strongly cramped, and the pen was held so fast that he had sometimes to remove it with the other hand. His toes also felt as if they were forcibly drawn down into the sole. About half an hour after going to bed, and

just as he was about to fall asleep, he was frequently seized with cramp in the calf of one or other of his legs, but seldom in both together. During the attack his heel was drawn up, and the muscles of the calf formed a round hard mass larger than his closed fist. When the attack was severe he had to jump out of bed and put the soles of his feet on the floor, and not unfrequently he had to walk downstairs and sit for an hour rubbing his legs and warming them before the fire. On these occasions he often warmed a pint of beer, and on getting thoroughly warmed himself after drinking it, he could go to bed and fall asleep.

Now, although the three symptoms which I have just described are probably always present at a moderately early stage of chronic alcoholic poisoning, yet it must be remembered that they are also met with in other forms of peripheral neuritis. I have myself observed them in the neuritis which supervenes in the course of rheumatism, gout, and diabetes, in that caused by chronic poisoning with the fumes of bisulphide of carbon and with the new explosive agent named "roburite," and in that form of multiple neuritis named by Dr. Weir Mitchell "erythromelalgia." Numbness of the fingers forms a prominent feature of diphtheritic and post-febrile paralyses, but I have not met with local asphyxia or cramp in these affections. A few cases of lead paralysis have come under my observation in which the patients complained of all three symptoms; but in these cases there was a suspicion of a complication of alcoholism as well. Numbness and local asphyxia of the fingers and toes often accompany hæmoglobinuria, extreme anæmia, and cancerous and other forms of cachexia; and many persons suffer from them habitually in the absence of any discoverable cause. It must also be remembered that in females pregnancy or uterine displacements may give rise to cramp of the calf and cold extremities, and that in both sexes the same symptoms may be caused by a loaded rectum or irritation of the bladder, and reflexly by irritation of still more remote organs. But although these symptoms, either separately or in various combinations, are met with in many affections besides chronic alcoholism, yet I do not think they are ever present in the aggravated form in which they appeared in these patients except as the result of excessive drinking or the prolonged exposure to the action of some other poison like the fumes of bisulphide of carbon. These symptoms are all the more valuable as affording an indication of secret drinking, because they appear long before there are any signs of paralysis, and at a time when the patellar-tendon reactions, instead of being absent, are either normal or exaggerated. But it is not necessary that all those who are suffering from the minor degrees of alcoholic neuritis should be heavy drinkers. It is, indeed, surprising what a small quantity of alcohol suffices to induce the premonitory symptoms of the disease in some subjects, the females of

neurotic families being particularly sensitive to its action. Nothing perhaps better illustrates the great sensitiveness of the nerves of some people to alcohol than the fact that a few glasses of one kind of alcoholic beverage will suffice to induce the early symptoms of neuritis, while other kinds may be taken daily with comparative immunity. It is a matter of common remark that gouty subjects are very sensitive to beer or port wine, while they can consume a fair quantity of sherry or whisky without experiencing any ill effects. I met a gouty friend one day at a public dinner, and knowing that he was of abstemious habits, I made a remark upon the fact that he was having a glass of wine. "Yes," said he, "I take a glass of dry sherry to dinner, and I sometimes take a little whisky. I am also very fond of beer; but," he continued, "I am very gouty, and were I to take a glass of beer just now, my hands before night would burn, my fingers would tingle, and the tips would get quite numb, and were I to persist for a few days in taking a single glass of beer to dinner, my finger nails would crack longitudinally, and break off so that the edges would become jagged." The above description corresponds much too accurately to the symptoms of a slight degree of neuritis of the sensory nerves of the hands to require further comment.

It will be noticed that every one of the five patients whose cases are here narrated had to rub their hands together for ten or fifteen minutes in the morning in order to warm them, or for the purpose of getting "the blood to circulate."—*Lancet, June* 8, 1889, *p.* 1126.

9.—PSEUDO-HYPERTROPHIC MUSCULAR PARALYSIS OCCURRING IN FOUR BROTHERS.

By Frank Nicholson, M.D., Physician to the Hull Infirmary.

The above condition occurs, as a rule, in family groups far more frequently than as isolated cases. Meryon mentions an instance in which as many as eight brothers suffered and died from this disease; but, as Dr. Gowers, with his large experience, only appears to have once met with as many as four sons in one family affected with it, the occurrence of the disease in four brothers which has come under my notice appears worthy of record.

The parents are both fifty-three years of age, and have been married twenty-seven years. They both enjoy very good health, and there is no history of pseudo-hypertrophic paralysis in either family, nor is there any taint of phthisis, cancer, syphilis, or insanity that I can discover. The husband is a coachman, and looks strong and well, and his wife is a typical example of a healthy-looking countrywoman. They were not related, and have had eleven children. 1. A boy, who died at the age of seventeen of pseudo-hypertrophic muscular paralysis. The symptoms were first noticed at the age of two, when the child was noticed to walk

clumsily and badly; soon afterwards the muscles of the calves and thighs assumed very large proportions, and he walked with the back much arched and the shoulders and head thrown back, and he raised his feet from the ground with difficulty. At the age of eight he became quite unable to walk at all, and died suddenly; the exact cause I cannot trace. 2. A boy, now aged twenty-five, and in excellent health. 3. A girl, aged twenty-three, and in very good health. 4. A boy, who died at the age of fifteen of pseudo-hypertrophic muscular paralysis. Was very late in walking, which he did very awkwardly. The calves and thighs grew extremely large, whilst muscular power got less and less, and at the age of three he was unable to walk alone. After living for some years in a helpless condition, he succumbed to lung mischief. 5. A boy, now aged eighteen, and in very good health. 6. A girl, aged seventeen; quite strong and well. 7 and 8. Twins, both boys, and born sixteen years ago. Both suffered from pseudo-hypertrophic muscular paralysis, and of these I shall speak more in detail directly. 9. A girl, now aged fourteen, and in good health. 10. A girl, who died of phthisis at the age of twelve. 11. A boy, who died at the age of fourteen months, after an illness of five weeks, said to be due to teething.

I first saw the seventh and eighth children, both of whom suffered from this disease, in December, 1886. They were twins, and small for their age, which was then fourteen. The larger of these two boys, who is still living, is said to have been a fine healthy child at birth, and nothing was noticed amiss till the boy was two years old. It was then observed that he was very unsteady on his legs, walking clumsily and awkwardly, going upstairs with difficulty, and falling very readily. During the next five or six years it was noticed that the calves and thighs were much larger than natural, whilst the gait was swaying and peculiar, the back being much arched and the shoulders thrown back. Latterly these muscles had wasted a good deal, and towards the end of 1886 the boy was unable to walk or stand alone. In December, 1886, the calves were still very firm and hard, and large in proportion to the general development, each measuring $10\frac{1}{4}$ inches in diameter; the gluteal muscles were big, but softish; so also were the hamstrings; but the quadriceps extensor was much wasted on both sides. The knees and left ankle were freely movable, but the right foot for a good many years had been in a position of equino-varus. The muscles of the arms were all somewhat wasted and soft, except the left infra-spinatus, which was markedly large and firm. Though quite unable to stand alone, he could do so when held or leaning against a chair or table, and then the lumbar curve appeared much exaggerated and the shoulders were thrown back. In general health he seemed very well. I have seen this boy again recently, and I now find the left infra-spinatus, which was very large, con-

siderably wasted, and there is much wasting of the muscles of both arms. The right calf is slightly less than it was, and now measures 10 in., whilst the left is larger and firmer than before, and measures 11½ in. The glutei and hamstring muscles are now much wasted, and both knees are rigidly fixed at a right angle; the deformity of the right foot is as before, whilst the left foot still continues natural. The boy eats and sleeps well, can dress himself, crawl about, and get downstairs alone, but has to be carried upstairs.

The smaller of the two boys, in December, 1886, though his age was fourteen, looked only about eight. He was then confined to bed with a high temperature, cough, and physical signs in the right lung, pointing to a rapid phthisis. He was a healthy and strong child at birth, but at the age of two he had trouble in walking. For several years the calves and thighs kept increasing in size, whilst his walking powers got worse and worse; but during the last three or four years the muscles had all wasted a great deal. Fifteen months previously he could not walk alone, and since then he had been gradually getting worse and more helpless. In December, 1886, he had for about six weeks been suffering from cough and feverishness, and was much emaciated and very feeble. He died early in 1887.—*Lancet, June* 1889, *p.* 1081.

10.—ON THE TREATMENT OF PROTRACTED AND SEVERE CHOREA BY PROLONGED SLEEP.

By H. Charlton Bastian, M.D., F.R.S., Physician to University College Hospital, London.

[The following excerpt forms the concluding part of a clinical lecture, in the course of which Dr. Bastian gives the narrative of a case of chorea treated successfully by prolonged sleep. The method pursued was as follows:—Twenty grains of chloral hydrate and ten grains of bromide of potassium were ordered to be given, and repeated on awaking; the patient to be allowed only half an hour awake at a time for the taking of nourishment; the sleeping draught to be used as seldom as possible. At first the draught was required every four hours, later on sometimes the patient slept eight hours without awaking, but in the average she was given it every six hours. Her food was beef tea or mutton broth, about a pint and a half, milk about the same amount, and usually two eggs beaten up with the latter, during twenty-four hours. Constipation was relieved by extract of cascara. Two periods of this treatment, the first of 14 days, the second of 3 weeks' duration, sufficed to effect a cure in what appears to have been a most inveterate case.]

In the last twelve years I have treated some eight or nine cases of chorea in this manner. Some of the cases have been notably improved; other very chronic cases, however, have not derived

much permanent benefit. In none of the cases has any evil resulted from the treatment; and previously to the present case I have never heard patients complain of headache during its continuance. I have consequently never before had occasion to give bromide of potassium in combination with the chloral. This patient, however, had suffered much from headache, as well as pains in other parts of the body, for a long time before the treatment was commenced, so that the pain could not be ascribed to the chloral, and she is now, indeed, comparatively free from it, suffering only at intervals. In one other respect, also, my treatment of this case has been different from others which have preceded it. During the second period she was kept asleep for three weeks, though I had never previously allowed the time to exceed two weeks. I was tempted to prolong the period in this case, because the movements were distinctly diminishing, and the patient was taking her food well and complaining less of headache. Perhaps, however, it would have been safer had she not been kept this extra week under the influence of the chloral, even though it might have involved another two weeks' sleep after an interval for the cure of the chorea. Certainly, on awaking (although the choreic movements had nearly disappeared) she lapsed for a time into a very unsatisfactory condition mentally. She became extremely emotional and full of fancies, one might almost say delusions; but then it must be recollected that she was a very weak and unstable subject, who had probably dropped into much the same sort of condition after the accident to the child, when for many days she was, as she said, "light-headed," not knowing what she did. During part of this period she menstruated, after an interval of nearly eight months.

In the course of a few days, under the influence of treatment and careful management, she passed out of this state, assumed a cheerful and natural mental condition, and began to improve in all ways. It is worthy of note, moreover, that while under our care she never had a single one of the "fainting" attacks, or fits, from which she had been suffering for the previous three years. During the whole period of the treatment the patient's general nutrition was well maintained, and the careful records which were kept of the temperature, pulse, and respiration, showed that the great vital functions were in no way affected unfavourably. On a few occasions for a short time her temperature dropped to rather a low point, but on the whole it was well maintained. During the time of actual sleep, also, the unnatural frequency of the pulse and respiration which had previously existed was kept in check. There is nothing to show, therefore, that any harmful effect was exercised upon the patient by the large quantities of chloral which she took in order to maintain sleep during these two periods of two and three weeks respectively.

But now let me say a word or two as to the kind of cases for

which I consider such a mode of treatment advisable. In all ordinary cases of chorea I never think of having recourse to it. With rest and very various kinds of treatment, in the course of six to twelve weeks such cases recover. Then, again, in the most acute and severe cases of chorea, in which the temperature is raised, and the movements are violent and continuous, with or without delirium or maniacal symptoms, I have never yet tried this mode of treatment, and should not recommend its adoption. It is, I think, especially applicable to a class of cases in which there is no fever and no heart disease, but where the movements are usually severe and continuous, and have so continued for months or years without abatement. These are the cases which I consider most suitable for such a method of treatment, and it is not the less applicable should there be, as in the present instance, a possible hysteric element about the case, provided always that the movements cease absolutely during sleep. For you must not forget that the essential object of the treatment is to ensure the prolonged cessation of the unnatural movements by producing sleep. I attach little importance to any supposed curative influence of chloral itself over the chorea, except through the intervention of the sleep which it induces. This drug has been used simply because it was originally recommended for the purpose, I think, by Bouchut, and because no evil effects have followed its use. Paraldehyde, which might otherwise be suitable, has too nauseous a taste to be employed. Sulphonal might prove, however, to be quite as efficacious in procuring continuous sleep as chloral. The difficulty we have here to contend with is its great insolubility and slower action, which would probably involve a distinct lengthening of the interval of wakefulness on each repetition of the drug. Whichever medicine be used, however, the great object should be to give no more than is absolutely needed to maintain the continuous sleep, and therefore all accessory means, such as quietude, slightly darkening the room, the expeditious administration of fluid nourishment five or six times a day whenever the patient awakes, and the use of the bedpan, should be had recourse to. The period in which the patient is awake should, as far as possible, not exceed half an hour at a time.

There is another advantage attaching to this method of treating hospital patients which is worthy of mention. You will recollect that it is mentioned in the history of our patient that she was under treatment for four months in the Edinburgh Infirmary, and that for nine weeks of this time she was kept in an isolation ward. Those of you who saw the patient when she was first admitted to this hospital will recollect how greatly the movements were aggravated whenever we came to stop at her bedside to inquire into her condition. The frequent repetition of this process would certainly have been most adverse to her recovery, and had I not intended to treat her by prolonged sleep, after carefully observing

her condition for a few days, I too should certainly have kept her under comparative isolation, so that she might be free from the perturbing effects of frequently seeing a number of students round her bed. By the method I have detailed to you, however, even the worst of such cases may be successfully treated in the general wards of a hospital; and I recommend it to you also as an occasional method which you may find hereafter of great use in private practice, when the aid of skilled nurses can be obtained, in the treatment of protracted and aggravated cases of chorea. Without such aid this method of treatment should never be attempted.—*Lancet, July* 13, 1889, *p.* 56.

11.—USE OF PARALDEHYDE IN MENTAL CONDITIONS.

By Thomas Smith Clouston, M.D., F.R.C.P., Ed., Physician Superintendent, Royal Asylum, Morningside, Edinburgh.

The effects we may legitimately aim and hope for in the treatment of mental diseases by hypnotics and sedatives combined with other treatment are: 1. To cut short a commencing attack of melancholia or mania in some cases. 2. To reestablish the sleep-habit of the brain in others. 3. To tide over short attacks that have a natural tendency to recover, through making the patient manageable by nurses in an ordinary private house. 4. To enable cases with severe attacks to be kept home long enough to satisfy patients' relatives that the attack is a "confirmed" one. 5. To give needed sleep and rest to relatives and nurses. 6. To combat temporarily dangerous symptoms. 7. To take the edge off the worse symptoms of cases who are being treated during a long attack, and so letting other measures have full effect. 8. To subdue severe and exhaustive symptoms, and so save the patient's strength and life. 9. To satisfy and soothe the minds of such patients as will have some such drug. 10. To quiet screaming or noise for the sake of others.

The most common case that has to be treated by the general practitioner of medicine is that of a man threatened with melancholia, who has the preliminary symptoms of sleeplessness, depression of spirits, want of interest in anything, and irritability with fears and, perhaps, suspicions of all sorts, who has, in fact, the general symptoms of brain exhaustion. In addition to the rest, the exercise, the change, the fresh air, the fattening, easily digested food, the tonics and nerve stimulants, and the walking we prescribe for such a case, we are justified, and frequently compelled, to try a hypnotic, if fresh air and fatigue, baths, hot and cold, massage or warm bottles to abdomen do not restore the sleep. I am not in favour of opium for such a case in however small doses, because my experience is that it diminishes the appetite, and the patient does not gain, but tends to loss in weight, while a habit and a

craving are apt to be set up. Chloral I once believed in far more strongly than I do now. It is a drug, the prolonged use of which, in some cases, certainly tends toward thinness, toward a haggard look in the morning, and toward diminished mental inhibition, as shown by a habit and craving for its continued use.

The drug I have used most extensively for the past two years, and like far better than any other pure hypnotic I have ever tried, is paraldehyde. This is so valuable, so reliable, and so free from risks near or remote, that I think it cannot be too widely known by the profession. It is mainly a pure hypnotic, though I have lately seen it recommended in small doses as a stimulant, and for the vomiting of pregnancy. It acts so quickly, that often the patient is sound asleep in five minutes after getting the dose. Out of about one hundred cases in which we have used it here, it caused sickness in only two, headache and disagreeable feelings in one, and a general "discomfort" in one. It does not interfere with the appetite for food next morning, nor disturb the stomach or bowels. After a paraldehyde sleep there is no headache, no lassitude, and several sane patients to whom I have given it have said that even the refreshed comfortable feeling they have after natural sleep, is present after it. That seems too good to be true in very many instances. I have no belief in any drug sleep being quite equal to natural sleep, in being "nature's sweet restorer." I am satisfied of this important fact, however, in regard to paraldehyde, that while the first part of the sleep after a dose is drug sleep, this passes gradually into what is really natural slumber. In fact it *puts to sleep*, and nature *continues* the slumber. Another fact of perhaps greater importance still is this, the use of paraldehyde for a time will, in some cases, restore the sleep habit of brain, and its use can then be discontinued readily, and with no felt want and craving by the patients. It is of no use, but the contrary, given through the day as a sedative. It seems to act on the very highest cortical cells, and not on the motor areas cortical or basal. In cases of mania, I often add a drachm of one of the bromides to the dose at bedtime, and in very acute and restless cases a drachm of "bromida." It sometimes excites when given in too small doses.

The proper dose of paraldehyde varies enormously according to the case. Generally, I begin with forty minims or a drachm, and go up to two drachms in ordinary cases. In very many cases of confirmed insomnia in melancholia and in acute mania, I have given three and even four drachms, and in one case six drachms. I have now a general paralytic who has taken four drachms every night for a fortnight. A lesser dose did not cause sleep. Here we commonly give it mixed with tincture of quillaya and a few drops of chloral ether in cinnamon water. Its bad taste cannot be got over, and patients always smell of it for 24 hours after the last dose.

I do not know how much would be a poisonous dose, but a nurse

once gave a patient of mine, a small-sized woman in weak health, an ounce, with the result that she slept a stertorous sleep for twelve hours, the heart's action not being interfered with, nor the reflexes, but rousing and coffee on several occasions during the night only very partially brought her to consciousness while under its influence.

I have never seen paraldehyde affect the heart's action in any way except to strengthen it shortly after being given. I look on its action as being in some respects half-way between that of ether and alcohol, but with a far more decided hypnotic effect than either.

I have had many cases in which its nightly use for periods of from one week to six has been followed at once, on its being stopped, by a restoration of the sleep-habit. The first case of that kind I had was a recent but very marked one of suicidal melancholia with restlessness in a woman at the climacteric, who, after its use for a month, at once began to sleep soundly for six hours every night, and soon made a complete recovery. The next, and the most remarkable I have yet met with, was one of suicidal melancholia with great impulsiveness, who had not slept naturally for more than an hour or two at a time for two years. As she required a special night attendant, I knew the facts accurately. She was put on paraldehyde in drachm doses every night. This dose needed to be doubled to get seven hours' sleep. This was continued every night for six weeks. She gained in weight, and took her food well during that time. It was then stopped, and the patient at once began to sleep naturally, has never needed a draught since for a period now of eighteen months, and very soon we were able to discontinue the special night attendant. Such a case makes a very deep impression on anyone who has the heavy responsibility of treating it. The result is in accordance with the physiology of the brain so far that we know that habits and "periodicities" are normal characteristics of its functions that can be broken or restored by outward conditions.

There are some cases of very acute mania and melancholia, and especially of the acute excitement of general paralysis, where half-ounce doses will not procure sleep, and I commonly do not push it beyond this.

One impression I have very strongly about paraldehyde after two years' experience of its use in all sorts of mental disease, acute and chronic, without organic brain disease, and in the last stages of brain lesions of many kinds, in very young cases, and in the very old, in cases without complications, in those complicated by severe diseases of the lungs and heart—and it is this: I do not think I have done any harm to any of my cases by its use. I have no feeling that it has interfered with the *vis medicatrix naturæ*, or with nutrition, or with the prospect of recovery, where this was possible. No one who has had long experience of the treatment of mental disease, but has the impression that the cases that have

"run their course" to recovery under favourable conditions, good nursing, and suitable food are the most satisfactory on the whole. The "recoveries" utterly outnumber the "cures." No one who has used many kinds of hypnotic and sedative drugs extensively, but has had the feeling frequently that by the means taken to subdue present troublesome symptoms he has interfered with the "course of the case," and that recovery may have been put off somewhat. I have that feeling strongly about the use of opium and chloral. I have no such impression in any case where I have used paraldehyde. If it did no good, it did not do any harm. That is a great thing in any drug, if true. The cerebral cortex and its working in health and disease are so infinitely delicate, so intensely unstable, and so profoundly obscure, that any drug which acts strongly and directly on it, and yet does no harm, is unquestionably one to be greatly valued. Paraldehyde is so volatile a drug that it is readily and completely eliminated by the lungs and kidneys.—*American Journal of Med. Sciences, April* 1889, *p.* 352.

12.—AFTER-EFFECTS OF PARALDEHYDE AND SULPHONAL.

By C. M. Hay, M.D., Assistant Physician to the State Asylum for the Insane, Morris Plains, New Jersey.

Although these two drugs differ considerably in their action in the various mental diseases, as well as in other diseases, their greatest differences lie in their after-effects. Here they widely diverge, one being capable of producing very few and comparatively innocuous after-effects, while those produced by its fellow are, to say the least, capable of being dangerous to life. A paraldehyde habit has been noted in a few cases since the advent of the drug, but I have not yet seen a case, although many of the patients in this institution have been taking it for many months continuously. Among this class of patients I have in vain sought for a case; and from the very limited number of cases that have been reported, when we consider its very general use since 1882, I conclude that it must be a rare occurrence compared to the frequency of the chloral, chloroform, or morphine habit. It certainly possesses two great safeguards in its taste and the odour it leaves upon the breath for from eight to sixteen hours after its ingestion. Whether sulphonal is liable to form a habit I am at present not able to say; but I have one patient who has been taking it about six weeks, and who has recently repeatedly asked to have the dose increased. Neither have I seen the continuous use of paraldehyde followed by serious nasal ulceration, as Dr. J. G. Kiernan has reported (*Wood's Therapeutics*), although in several cases I have seen a scattered papular eruption over the upper part of the body in debilitated subjects.

The principal after-effects of paraldehyde in my cases have been

due to its irritant action upon the gastro-intestinal mucous membrane, and for this reason it should be given well diluted. Diarrhœa, vomiting, and impairment of the digestive functions have occurred in about 7 per cent. of cases. Strange as it may appear, I have seen its continuous use followed by increase in appetite and a corresponding increase in digestive power in several cases of atonic dyspepsia. Whether this was wholly due to its stimulant action upon the gastric mucous membrane, or was the result of the relief of sleeplessness, it is difficult to say, but I think that probably both combined gave the result. I have never seen paraldehyde produce any serious alteration in the pulse, temperature, or respiration, and these observations are abundantly confirmed by many who have extensively used the drug. It will be sufficient to quote from a paper by H. C. Harris, M.D., on its use upon 152 patients at the Norristown, Pa., Insane Asylum. He says: "Its advantage over chloral, in our experience, is mainly that there is no danger from its action on the heart; in fact, 100 minims have been given to cases of acute mania without the slightest noticeable effect upon the heart or respiration." The very fact that this drug has been so extensively used since 1882, and that so few bad effects have been noted, proves pretty conclusively its safety, even in the fullest therapeutic dose.

What evidence have we that sulphonal is capable of producing more serious symptoms? The very high commendation which it received at first led to an extensive use of the drug, and very soon cases were reported in which unpleasant symptoms occurred. Dr. Bornemann (*Deutsche medizinal Zeitung*, Nov. 26, 1888) relates a case—male, aged fifty-three, suffering from the morphine habit—who was given 90 grains in four hours. Muscular weakness and incoördination and great mental depression were produced, while the ataxia did not disappear until the sixth day. Dr. Schotte, of Cassel, has reported a case in which difficult movement of the tongue, stupor, headache, and loss of appetite persisted for four days, and were succeeded by an eruption, like that of measles, over the entire body, lasting two days. Dr. Engelman (*Wiener medizinische Blätter*, Nov. 1, 1888) gives a case—female, aged forty, suffering from chronic metritis—in whom only gr. xxx produced, the following morning, a diffuse scarlet eruption, extending symmetrically over the body, which subsided with violent itching on the third day.

It may be stated that 30, or 18 per cent., of my 166 cases, experienced unpleasant after-effects. Some persons seem very susceptible to it, while I have given in violent maniacal states as much as one drachm daily for twelve days, with no alarming symptoms. The after-effects of sulphonal are far more variable and are more significant of its more powerful action upon the great nerve centres than those of paraldehyde. The effects which it in

some cases produces bear no direct proportion to the amount ingested, so that the production of the various symptoms in these cases must, at least in great part, depend upon other conditions of the organism itself; while I have no doubt that the conditions of its solution in and absorption from the intestinal tract have great influence also in their production.—*American Journal of Medical Sciences, July* 1889, *p.* 38.

DISEASES OF THE ORGANS OF CIRCULATION.

13.—ON CHRONIC ENDARTERITIS AND ITS CLINICAL EFFECTS. (CHRONIC BRIGHT'S DISEASE.)

By Arthur V. Meigs, M.D., Physician to the Pennsylvania and Children's Hospitals, Philadelphia.

Chronic endarteritis is as much of a disease by itself—a separate entity—as are typhoid fever and measles. It is in the highest degree important that this fact should be recognised, and that the disease should be transferred from the position it now occupies among the obscure and little understood pathological curiosities, to the rank it is sure soon to claim for itself among the common and well-known complaints of every-day life. The fact that our knowledge of the complaint is still most incomplete is no more reason for longer delaying to receive it among ordinarily recognised diseases than it would have been right for Bright to have withheld his great addition to the sum of pathological knowledge because there was still more to be learned in the same line of thought. Since there has come to me the feeling that I have more understanding of the pathology of the disease than formerly, the clinical management of cases often occasions a good deal of difficulty, by placing me in an awkward position with my patients when they or their friends ask: "What is the disease with which they are suffering?" To say Bright's disease in every case in which albumen and casts are found in the urine, would be very far from a correct expression of my understanding of the malady, for the instant conclusion of the public is that the patient has a disease which is as incurable as cancer, and one which will terminate in death almost as soon; whereas in many cases I *believe* that complete recovery, so far as the further progress of organic change is concerned, takes place, and I *know* that in many others the patients live in comfort for long periods of years. Such being the case, a name is needed by which to designate the disease, and it must be one from which the word kidney will be excluded; for it may be asserted that it is now known that the disease does not necessarily involve kidney change, and, if it does, that such change is only a very small part of the whole, and is subsidiary to something else. The pathological lesion which is always present,

and which, so far as investigations made up to the present time show to be most widely diffused through the organs and tissues of the body, is an inflammatory thickening of the *intima* of the arteries and arterioles, and, whether the future will show this to be the primary and original change and the true cause or not, it is so widely diffused and so important that to call *it* the disease seems to me much more correct and descriptive than any other that has been proposed. Chronic endarteritis, a simple inflammation of the lining of the arteries, is the process by which the disease begins and thence extends to almost any degree throughout the arterial system, to some degree into the veins, and probably into the capillaries, as has been proved by the observations of others and my own. This name should be modified to meet the needs of individual cases, as the pathological lesion attacks one or another or several organs, by saying—chronic pulmonary endarteritis, chronic cerebral endarteritis, chronic cardio-renal endarteritis, or other combinations as may be required to make the name accurately descriptive of the variations of one case from another.

[Eighteen illustrative cases narrated in the original paper are here omitted, as well as that section of Dr. Meigs' important communication dealing with the morbid anatomy of the disease.]

The symptoms of this disease are of such a nature as, in marked cases at least, to make the diagnosis an easy matter. Perhaps these symptoms cannot be better elucidated than by passing them in review and trying to collect them together in such groups as they would seem most naturally to fall into, for to my mind certainly they present a clinical picture which is most striking and characteristic. Hemorrhage, whether it appear in the form of epistaxis or of cerebral apoplexy, is a marked symptom, and one which should always rouse the physician to investigate whether endarteritis has not taken possession of some part of the vascular system of the patient. Any externally distinguishable stiffening of the arteries, commonly called atheroma, is to my mind positive evidence of the presence of endarteritis, for I have yet to examine an atheromatous artery exhibiting diseased middle and external coats and a healthy intima. Many of the commonly received symptoms of kidney disease, though they do most certainly indicate that that organ has undergone grave pathological change, causing damage to a greater or less degree, and which will be permanent and irreparable, show much more, if the warning is but heeded, that extensive and often much more dangerous degenerations are taking place in other and perhaps far-away organs and tissues of the body.

The various manifestations of disturbance of cardiac function are among the most constant accompaniments of endarteritis in any form, and as far as present knowledge leads us to a comprehension of the subject, among the most important and of greatest gravity. It has long seemed to me the merest folly, in all cases of demon-

strable cardiac valvular disease, to set it down as caused by rheumatism or chorea, or even to over-exertion of the body, as is so commonly done by clinicians; or, on the other hand, to believe that rheumatism commonly induces endocarditis and stops at that.

Œdema coming on without discoverable organic lesion sufficient to account for its presence, is often an indication of the existence of endarteritis, and the same may be said of vertigo and irregular heart-action in some instances.

The fact that symptoms connected with pulmonary disorder or actual lung diseases are often the earliest departures from health in those who afterward die of what has been called chronic Bright's disease, was one of the things which first caused me to feel any doubt of the sufficiency of that mode of explanation of the train of symptoms. In eight cases the mode of origin was an attack of pulmonary disease, and six of them certainly were cases that everyone would agree to call Bright's disease. This phase of the complaint may declare itself in the form of an attack of bronchitis, either by cough and expectoration without physical signs; or with a full development of bronchial râles, as the case may be; or catarrhal pneumonia, a disease which is capable of taking upon itself very many and varying aspects; or of asthma or emphysema; or, lastly, there may be one of the forms of oppression, either sudden and violent, or coming on gradually and being very persistent, which are such common and well-known accompaniments of chronic disease of the kidney. These manifestations of pulmonary disorder may be acute and accompanied by great fever and general disturbance of the system, of such a character as to constitute an acute illness confining the patient to bed; or their onset may be so insidious as to attract little or no attention until a physician discovers that his patient is going about with a lung half solid from pneumonia.

Functional disturbance of the liver is not uncommon, and the frequency with which the blood-vessels are thickened shows it to be likely that it has here, too, some causative relation. The spleen is incapable of inducing clinical symptoms of which at the present time we have knowledge, but it is one of the organs in which the pathological change of the vessels is most commonly found.

Symptoms manifesting a disordered state of the nervous system have long been well recognised as a common consequence of this disease, and of late several interesting and valuable communications upon the subject have appeared in different medical journals; but the earliest attempt probably to arrive at a scientific understanding of their cause was made in the paper of Gull and Sutton. In these symptoms of disordered nervous function do we find what affords perhaps the strongest confirmatory evidence that the disease has its origin in the vascular system, and at the same time the best proof that the old theory of origin is totally untenable. There has never even been an attempt made to explain the cerebral apo-

plexy and many other less formidable symptoms of nervous disorder that are so common, and clinically so fully recognised, except in a general way to allude to the many things that increased arterial tension is capable of effecting. The most common of these symptoms are: cerebral apoplexy, general muscular weakness, with shuffling gait but without actual paralysis, and, in some instances, wasting of the muscles; change of temper and disposition, nervousness and decline of mental power, especially loss of memory, and even mild insanity; and in old people in the latter stages of the disease, most commonly after they have got so weak as to be confined to bed, a curious general hyperæsthesia which does not seem to be confined to the skin, for there is great pain caused by any movement.

Rheumatism and gout seem to be near relatives of endarteritis, or at least closely bound up with it. In one of the cases rheumatism, and in another gout, seemed to set fire to the train that finally led to the fatal result, and in both, as has already been alluded to, post-mortem examinations were made, and the lesions of chronic endarteritis in a typical state of development found, and they both died with all the ordinarily recognised symptoms of chronic Bright's disease.

In the clinical management of cases there is nothing which occasions more difficulty than the question of prognosis; for, to anyone who has had to deal much with the disease, one thing at any rate is very plain, that many cases that a few years ago would have been looked on as necessarily fatal, recover entirely, and others regain sufficient health to live for many years in comfort. It is wonderful how differently two cases, that at the outset seemed very closely parallel, may terminate, the one perhaps living for many years, and the other dying within a few months. It seems possible to explain this, so far as the kidney is concerned, only by the belief that there was, at the time of the acute attack, a wedge-shaped spot or spots of inflammation with round-cell infiltration, the broad base of the wedge being toward the cortex, such as are so commonly seen in sections cut from the organs of persons dying in this stage of the disease, and that this has in the course of time healed, after having destroyed a greater or less number of tubules, and left in their place a small scar. Why it should so long have been supposed that the kidney was incapable of getting over the effects of an inflammatory process which is in nowise different from what occurs elsewhere, when it is perfectly well known that every other organ and tissue in the body can undergo regeneration to a greater or less degree, is a thing which is incomprehensible! In view of these facts we should, as physicians, be very slow to give a fatal prognosis, except in cases in which the morbid changes have progressed so far as to make our ground very certain. There is no combination so bad, and none which so fully seems to justify

a very gloomy prognosis, as the presence of albumen and casts in the urine, with general dropsy and a heart evidently greatly enlarged, with much shortness of breath. Of these symptoms, to individualise them, there are none which have anything like the grave significance of enlargement of the heart with heaving impulse and constant shortness of breath; people with this combination seldom live more than a few months. Experience has long since taught me to believe that the presence or absence of the signs of valvular change are, comparatively speaking, of very secondary importance, and should have little influence in determining our decision of the probable duration of life, but that all our efforts should rather be turned to endeavour to form an estimate of the size of the heart and state of its walls.

Of treatment, it need only be said that the disease is so widespread in its results, and produces such varying effects as the morbid process takes possession of one or another part of the organism, that no special plan of treatment could be laid down which would cover all the different aspects it may present. Drugs which have seemed to me to be capable of effecting much good in certain phases of the complaint are carbonate of ammonia with small doses of digitalis—these should be given three or four times a day, and their use persisted in for long periods, often for as much as a year or more.—*N. Y. Med. Record, Aug.* 24, 1889, *p.* 198.

14.—ON THE PRACTICE OF TRANSFUSION.

By William Hunter, M.D., M.R.C.P., F.R.S.E., Arris and Gale Lecturer, Royal College of Surgeons, London.

(1.) Transfused blood possesses no nutritive value. Transfusion of blood is, therefore, useless in all forms of "atrophic" anæmia by which term rather than by the unfortunate term "symptomatic," hitherto given, I would distinguish all forms of anæmia in which the changes in the blood simply correspond in degree to the wasting changes occurring in other tissues. The anæmia of all forms of wasting disease is, therefore, of this character. It is important to note that the degree of anæmia cannot be judged of by the amount of pallor. Examination of the blood alone enables us to determine whether the anæmia is "atrophic" in its nature or not.

(2.) If the condition to be met is a want of red corpuscles, or an incapacity on the part of those already present to carry on their respiratory functions, then transfusion of blood may possibly be of value. The red corpuscles transfused remain for a certain time within the circulation of their host. Transfusion of blood may conceivably be of value in carbonic oxide poisoning, where the red corpuscles are incapacitated for their work by a close union of the gas with the hæmoglobin of the corpuscles. Successful cases have been recorded without, however, any clear demonstration,

that the most dangerous stage of the poisoning had not been passed before the operation was performed. In most of the cases recorded, chiefly by German observers, the transfusion was not made for many hours after the symptoms of poisoning were fully developed. In any case the transfusion must in this instance always be preceded by a venesection. Even when this is done, the operation is of doubtful value.

As regards the other indication for the transfusion of red corpuscles—the existing want of them—it may be stated that there is scarcely a single condition of the blood in which the want of red corpuscles is a source of urgent danger. After the greatest losses of blood in animals, a sufficient number of red corpuscles always remain in the circulation to carry on respiration, provided that the circulation is maintained. In animals, after loss of half to two-thirds of the total quantity of blood in the body, the number of corpuscles per cubic millimètre may be found as high as 3,000,000 or 4,000,000. The absolute loss is, of course, great, but the relative loss is slight, and is of little importance. The animal's health is in no way affected injuriously by the loss. In some of my experiments the animals have gained in weight from the day of the abstraction of blood, no indication being afforded of any disturbance at all, except on examination of the blood, which showed the reduction in the number of corpuscles. In man the loss of blood can never be so great as in animals. Syncope occurs earlier. Transfusion of blood is, therefore, never required for the purpose of supplying red corpuscles to carry on respiration after sudden loss of blood in a patient previously healthy. The immediate source of danger in such cases is not the want of red corpuscles, but the disturbance of the relation between the vascular system and its contents.

Nor is transfusion of blood indicated on account of its respiratory value in anæmia of idiopathic or traumatic origin. By idiopathic anæmia I mean those conditions in which the changes in the blood are in excess of the changes in the other tissues, and constitute a characteristic feature of the disease. The best examples of this form of anæmia are pernicious anæmia, chlorosis, and leucocythæmia. It is remarkable how slight the disturbance in respiration may be in cases, for example, of pernicious anæmia in which the red corpuscles may be reduced to 10 per cent., or even less, of their original number. I have observed cases in which the number of corpuscles was as low as 500,000 or 600,000 per cubic millimètre, instead of 5,000,000 as in health, the respirations never rising above 20 per minute; the breathing perfectly tranquil throughout. The great breathlessness on exertion always observed depends on other factors, and in any case never constitutes an indication for the performance of transfusion.

(3.) If the condition to be met is a failure in blood formation

due, perhaps, to the want of iron in the system, transfusion of blood may be of some value, in so far as we in this way supply the organism with iron in the form in which it can most conveniently be stored up in the body. The two conditions in which this disturbance is most marked are chlorosis, and traumatic anæmia resulting from long-continued and repeated hemorrhages. There is, I conceive, no disease in which transfusion of blood corpuscles is theoretically more indicated than in chlorosis. The anæmia here is in a special degree the result of an insufficiency of iron in the system, so much so that a chlorosis of old age where, as we have seen, the tendency is for pigment to accumulate in great abundance within the spleen, bone marrow, and other organs, is almost a contradiction in terms. The anæmia of chlorosis we can, however, readily combat without having resort to transfusion.

The question as to the advisability of transfusion in traumatic anæmia is not so easily answered. Our object here is not so much to relieve any passing danger arising from insufficient bulk of fluid, or want of red corpuscles, as to stimulate blood formation. That transfusion appears to be of value in some cases there is no reason to doubt, but how far the result is *propter hoc* as well as *post hoc* it is impossible in any case to determine. If it really is of any value it must be solely by assisting blood formation. I am inclined, however, to regard it of doubtful value even from this point of view, and that for the following reason: that in animals the subsequent recovery after loss of blood is certainly not accelerated by transfusion of blood, but in most cases is actually retarded (Hayem, von Ott). If this be the case where the blood-forming organs are active as in health, it is difficult to understand how the result will be different in disease. The recovery is effected with greater rapidity when simple saline solution (3 per cent. solution of common salt) is injected than when blood is transfused. My own experiments show that the recovery after infusion of saline solution is remarkably rapid. The time required for the return of the red corpuscles to their original number after loss of blood, without subsequent infusion or transfusion, varies from two to three weeks. With subsequent infusion of simple saline solution it is the same; whereas with subsequent transfusion of blood complete recovery is delayed a week longer or more. Further, what is perhaps more striking and certainly is of more importance, is the fact that during the subsequent recovery the animal generally appears to be in better health after infusion of salines than after transfusion of blood.

Even in traumatic anæmia resulting from long-continued losses of blood, transfusion of blood has in all probability no value not possessed by simple saline solution. The former may actually retard blood formation; the latter is at least always harmless, and might be beneficial if it were required.

In the other forms of idiopathic anæmia, pernicious anæmia, and leucocythæmia, transfusion of blood can, in my opinion, never be indicated. In both, the condition of the blood is the result of changes in the blood-forming or blood-destroying processes, or both.

In leucocythæmia the disturbance is one of blood formation in the first instance, evidenced by the increase in the leucocytes of the blood, while the diminution in the number of the red I find to be due in great part to excessive blood destruction, probably induced by the activity of the leucocytes. In pernicious anæmia, the condition of the blood is mainly the result of excessive destruction. Transfusion of blood under such circumstances is not unattended by dangers as we have seen, but is followed in most cases by rapid destruction of the injected red corpuscles as evidenced by fever, sometimes by hæmoglobinuria, occasionally also by increase in the slight icterus which so frequently marks the progress of the disease.

It is important, therefore, to be able to distinguish between profound anæmia of traumatic origin and pernicious anæmia; and this I find it is possible most easily to do, by having regard to the character of the urine in the two cases. I find that the urine of pernicious anæmia contains large quantities of pathological urobilin, recognisable both chemically and on spectroscopic examination, and that its colour is correspondingly high. In marked cases, or during periodic exacerbation of the destructive process within the blood, this character of the urine is a very striking one; more especially as it is unaccompanied by any diminution in the quantity, is frequently quite independent of the occurrence of fever, and the specific gravity is usually very low (1010 to 1015).

The urine of traumatic anæmia, on the contrary, is exceedingly pale in colour, and is free from pathological urobilin. If in addition we note the condition of the blood in the two forms of anæmia, with special reference to the relation between the richness in hæmoglobin and the corpuscular richness—in traumatic anæmia the percentage diminution in hæmoglobin being usually considerably in excess of the diminution in the number of corpuscles; whereas in pernicious anæmia the hæmoglobin percentage is always relatively high, I believe we shall be able in future to draw a sharper line of distinction between these two forms of anæmia than has hitherto been possible.

(4.) Lastly, if the condition to be met in transfusing blood is a threatened failure of circulation as the result of sudden loss of blood, then it is unnecessary to have recourse to blood transfusion, as infusion of any neutral saline meets equally well, if not better, all the indications. The value possessed by transfused blood in such cases is almost solely in virtue of its physical properties. The chief physical property of blood for purposes of transfusion is undoubtedly its volume. The immediate source of danger from sudden loss of blood is the fall in the blood pressure to a point

where the circulation is unable to be maintained. The obvious indication, therefore, is to raise the pressure within the vessels. In health the blood pressure is dependent mainly upon peripheral resistance. The effect of a loss of blood on the blood pressure is, up to a certain point, completely neutralised by an increase in the peripheral resistance due to stimulation of the vasomotor centre. It is only after very severe hemorrhage that this relation between the vessels and the amount of fluid they contain necessary for the carrying on of the circulation is disturbed. The pressure falls rapidly and suddenly, and death will ensue unless means be taken to meet the threatened failure of the circulation. The readiest way in which this can be done is to replace the lost blood with a certain bulk of fluid. To meet the danger thus arising, the quantity of blood is of more importance than its quality. In an emergency the infusion of ordinary water (Coates) has been followed by results as successful as any ever obtained after transfusion of blood. Bulk for bulk, pure or defibrinated blood, however, must possess certain advantages over neutral saline solutions free from organic constituents. They doubtless possess a certain physiological value as well as a physical value, inasmuch as blood must have a greater and more immediate effect in restoring the tone of the vasomotor centres than saline solutions. These advantages, however, are more than neutralised by the other and still greater disadvantages—namely, (1) the difficulty of obtaining blood in sufficient quantity or with sufficient rapidity as compared with the ease with which simple saline solution can be prepared ; (2) the dangers attending the transfusion of blood, compared with the absolute freedom from danger possessed by solution ; and (3) the doubtful value of the transfusion, whether hæmogenic or physical, when compared with saline solution.

Transfusion of blood will long continue to be practised, and its action studied on account of the many interesting problems connected with the physiology and pathology of the blood on which it is well fitted to throw light. For practical purposes, however, all the advantages to be gained by transfusion may, I believe, be equally well and more readily obtained by infusion of a neutral saline, such as $\frac{3}{4}$ per cent. solution of common salt (about one drachm to the pint). The only pressing indication for the performance of transfusion is the collapse from sudden and severe loss of blood.

With regard to its performance, two points may be noted : (1) that the simpler the instruments used—a simple glass cannula, with a piece of india-rubber attached, and a clean syringe—the more easily will this infusion be effected, and the less likelihood will there be of the injection of air—a source of danger to which far too much importance has long been attached, as it is also one which can readily, with a little care, be altogether avoided; (2) that the temperature of the solution should never rise above that of the body.

Under no circumstances is transfusion of milk or of other mixtures possessing what are supposed to be nutritive properties, ever indicated. They possess no value not possessed by an equal bulk of saline solution.—*British Medical Journal, Aug.* 10, 1889, *p.* 308.

DISEASES OF THE ORGANS OF RESPIRATION.

15.—ON PSEUDO HAY FEVER (CHRONIC HYPERTROPHIC RHINITIS): ITS SYMPTOMS AND TREATMENT.

By Adolf Bronner, M.D., Surgeon to the Bradford Eye and Ear Hospital.

So much has lately been written and talked about hay fever that I almost feel as though I must apologise for introducing it. It seems to me, however, that in this case, as in so many others, the very fact that so much is written and discussed on the subject proves that most men do not agree as to the exact nature and definition of the disease. Most men simply call hay fever any chronic or recurrent affection of the mucous membrane of the nose, accompanied by attacks of copious watery discharge or violent sneezing. We thus find that hay fever seems to be a very common disease. If we, however, carefully examine these cases, we find that we can, roughly speaking, divide them into two classes: firstly, those cases in which the mucous membrane of the nose usually seems to be quite normal, and only swells at certain periods, when the swelling is accompanied by attacks of violent sneezing and watery discharge —hay fever and vaso-motor rhinitis; and, secondly, those cases in which the mucous membrane is always swollen—chronic hypertrophic rhinitis. The diseases of the first class are of a neurotic nature, and occur mostly in weakly and nervous subjects. The attacks of violent sneezing and watery discharge are brought on, firstly, only by the pollen of certain grasses, and by no other irritant —hay fever; or, secondly, by any sudden change of temperature, or wet feet—vaso-motor or neurotic rhinitis. In the second class —chronic hypertrophic rhinitis—the disease is purely local, and is caused by a chronic enlargement of the mucous membrane of the nose. The attacks can be brought on by any local irritation, and therefore also by the pollen of grasses, but not, as in hay fever, exclusively by these; and also by any sudden change of temperature or wet feet. Hay fever, as just described, is a very typical and well-defined disease, and is, in the north of England at least, of very rare occurrence.

There is another affection closely allied to hay fever, which I should like to call nervous or vaso-motor rhinitis. Like hay fever, it mostly affects neurotic subjects, especially girls of the upper classes. It usually occurs in autumn and spring. The attacks are similar to those of hay fever, and are accompanied by profuse

watery discharge and sneezing. During the attacks the mucous membrane is much swollen, but in the intervals it appears to be quite normal. Unlike hay fever, the attacks are not caused by any local irritation, and have nothing whatever to do with the pollen of grasses, but are brought on by sudden changes of temperature or wet feet. They last a definite time—generally twelve or twenty-four hours,—and mostly begin at night, and last till the following morning or evening. The sneezing and watery discharge are generally so violent that the patient cannot sleep, and feels very weak in the morning. Cocaine or menthol often affords relief for some hours. In some cases antifebrin or bromide of potassium cuts short the attacks, thus proving the neurotic origin of the disease. In this class of cases—hay fever and neurotic rhinitis—local treatment is of very little use, unless combined with general treatment, and even then in most cases the only effective cure is change of climate.

The disease which is generally called hay fever, which is very common, but which has nothing whatever to do with hay fever as defined above, is a kind of chronic hypertrophic rhinitis. It is mainly a local affection, and is caused by a chronic enlargement of the mucous membrane of the nose. The mucous membrane of the lower turbinated bones is usually affected the most; often also that of the middle turbinated bones, septum, and floor of the nares. The swelling is of a dull-red colour in the anterior half, and of a yellow-grey colour in the posterior half, where it is often mistaken for a polypus. On pressure with a probe, the parts appear soft, and can readily be compressed. After the use of cocaine or menthol, the mucous membrane partly collapses and attains nearly its normal size. This is of great importance, as we can thus readily recognise what is swollen mucous membrane and what is normal tissue. On microscopic examination, the swelling is found to be caused by hypertrophy of the third or cavernous layer of the mucous membrane, and is therefore in reality a kind of angioma cavernosum.

Hack, Fraenkel, and others have in late years shown how this swelling of the mucous membrane of the nose can give rise to all kinds of reflex symptoms, such as asthma, megrim, epileptic attacks, etc. I cannot now, however, enter into these very interesting researches, but will only touch upon the typical symptoms of chronic hypertrophic rhinitis, some of which closely resemble the symptoms of hay fever, and which have given rise to so much confusion. In all cases there is a history of obstruction of the nares, generally only one side at a time, and worse at night. In many cases the whole of the nose is swollen, and of a peculiar shiny red colour. Often there is swelling and eczema of the upper lip, caused and kept up by the constant discharge from the nares. Certain irritants—dust, smoke, etc.—or sudden change of temperature, or wet feet, bring on attacks of violent sneezing, which last from several minutes to as many hours. These are often accompanied by a co-

pious watery discharge, or we may have the copious discharge without any sneezing.

[Dr. Bronner relates five illustrative cases, here omitted, and then gives his method of treatment by galvano-cautery, as follows:]

As these symptoms are brought on by a chronic enlargement of the mucous membrane of the nose, it naturally follows that the treatment must chiefly be a local one. If we consider that the swelling is caused by hypertrophy of the third or cavernous layer of the mucous membrane, and often attains very formidable dimensions, we can readily conceive how half-hearted measures, such as the nasal douche and various kinds of snuffs, can in most cases be of no permanent benefit. I now invariably in well-marked cases use the galvano-cautery, and find it vastly superior to any other method. Before operating I use the cocaine spray, and then introduce a plug of cotton wool saturated with a 10 per cent. cocaine solution into the nostril, and leave it there for about ten minutes. The operation is thus rendered practically painless. In fact, the only thing even very nervous patients complain of is the disagreeable smell of the burnt tissue. I use a thick platinum wire point, and slightly bend the point towards the mucous membrane. If possible I use a new point for every patient, to avoid the possibility of any infection. I have had some points made in which the isolating silk only goes to the middle of the shaft: so that the upper half, which is introduced into the nostril, can, if necessary, be properly disinfected. The point is passed, under guidance of the frontal mirror, through the anterior nares to the posterior end, and then drawn with gentle pressure along the whole of the mucous membrane of the lower turbinated bone—once. You thus cut, or rather burn, a deep furrow along the whole of the diseased membrane. A cicatrix forms, which prevents any subsequent swelling of the mucous membrane, especially if, as happens in most cases, the cicatrix becomes adherent to the osseous tissue of the turbinated bone. I generally find it necessary to operate twice on either side. In cases in which the swelling is very great or the septum bent or thick, I introduce a plug of cotton wool and glycerine to prevent any subsequent synechiæ between the turbinated bone and the septum, which are otherwise very apt to occur.

Chronic hypertrophic rhinitis is a very common disease. In bad cases it renders the life of the patient perfectly miserable, often compelling him to give up his occupation and leave his home in search of a better climate. In many cases it goes on into polypoid degeneration of the mucous membrane, accompanied by loss of smell and taste, sets up inflammation of the maxillary or frontal sinuses, and is a very common cause of so-called post-nasal catarrh and relaxed throat. It also very frequently brings on or keeps up inflammation of the middle ear. In all cases of chronic or recurrent diseases of the middle ear, we ought therefore to carefully

yield the bacillus. The bacillus of leprosy is nearly like the tubercle bacillus in form, and it gives the same colour reaction. The clinical course of leprosy is so distinct, and the disease is so rare in this climate that it is not difficult to exclude it when considering a tubercular disease.—*Journal of American Medical Association, March* 30, 1889, *p.* 443.

DISEASES OF THE ORGANS OF DIGESTION.

22.—ON CASES OF SUBPHRENIC ABSCESS SIMULATING PNEUMOTHORAX.

By Sidney Coupland, M.D., F.R.C.P., Physician to and Lecturer on Medicine at the Middlesex Hospital.

[Dr. Coupland's paper opens with the narrative of a case in which the diagnosis of subphrenic abscess, based upon the presence of pyrexia and the discovery by exploration of fœtid gas, was confirmed by subsequent operation. Mr. Gould, who operated, found the abscess cavity to be divided into two pouches, one of which appeared to be above and behind the liver, separating it from the diaphragm; and the other ran down to the iliac fossa, as far as Poupart's ligament. It was clear that the abscess was situated deeply in the abdominal wall, and that its gaseous contents had made their way upwards between the muscular and fascial planes, so as to eventually come between the liver and the parietes. Before operation the physical signs were those of a large pneumothorax in the lower part of the right chest, i.e., absence of breath sounds of vocal fremitus and resonance; metallic tinkling was occasionally heard, and the "bell sound" was easily elicited. The patient, a boy aged 15, had been ailing for two months before he came under Dr. Coupland's care. The onset had been somewhat sudden, with vomiting, constipation (3 weeks), and great pain in the right iliac region. The administration of castor oil made matters worse, and he was confined to bed for 6 weeks, during which time he was feverish and lost flesh. The right thigh was kept flexed upon the body, to relieve the pain in the abdomen. He made a good recovery, the abscess having healed at the end of not quite two months from the date of the operation.]

The precise condition illustrated by this case is not very common, and it has, in consequence, received but little, if any, notice in text-books, or even in works which deal more especially with thoracic or abdominal disease. Moreover, most authors who do refer to it seldom speak from personal knowledge of such cases. Thus Dr. Gee says: "An abscess below the diaphragm may become partly filled with air, and may so raise the diaphragm, the pleura remaining uninjured, as to give a tympanitic percussion note over the lower part of the chest, but not the amphoric signs

of pneumothorax." This latter statement is confuted, not only by the case I have narrated, but by many quoted by Leyden, to which I shall presently refer.

Dr. Hilton Fagge refers to a case of Wintrich's, where one such abscess, due to a perforating ulcer of the stomach, was mistaken for pneumothorax.

Dr. Austin Flint enters into more detail, reproducing Leyden's conclusions, and also states that the diagnostic features of these abscesses were first recognised by Barlow and Wilks in 1845.

Eichorst summarises the facts recorded by Cossy and Leyden, and reproduces the illustration given by the latter in his paper on pyo-pneumothorax subphrenicus. Indeed, this paper practically comprises all that can be said upon the subject; and I will briefly mention its salient points:—A peritoneal abscess containing air as well as pus, may develop on the right or left side. When on the right side it may push upwards the diaphragm to the level of the third space, depressing the liver and compressing the lung, whilst it is limited on the left by the falciform ligament. Its presence is indicated by the full resonance over the retracted lung, the tympanitic note extending downwards from the third rib, and replacing the normal hepatic area, the palpation of the displaced liver, the absence of breath sound and presence of metallic clang or amphoric hum below the third rib, together with metallic phenomena on combined percussion and auscultation, absence of vocal fremitus, and lastly the presence of succussion and of dulness, shifting with position, when the cavity contains sufficient fluid. The points in differential diagnosis between a gaseo-purulent collection above or one below the diaphragm are stated to be: 1. The development of the disease pointing to abdominal inflammation. 2. Absence of cough and expectoration at least during a long period of the illness. 3. But little displacement of the heart, and no bulging of interspaces. 4. Normal respiratory murmur below the clavicle, and abrupt transition lower down to an amphoric echo.

Leyden then goes on to say that the condition has been frequently described, but in most cases the true nature of the case has only been revealed by the post-mortem examination. Considered during life to be pneumothorax, the case has often had withheld from it that surgical intervention which, if resorted to early, might have saved life.

In addition to the cases he has quoted from various writers, Professor Leyden relates three cases in which he diagnosed the subphrenic character of the condition, which in each case had the signs of pyo-pneumothorax. The cases are all referable to perforation of stomach or intestine setting up a localised purulent peritonitis, instead of the more common general peritonitis with meteorism, a condition in which disappearance of liver dulness forms so valuable a sign. In only one case, and that doubtful, was

the subphrenic abscess attributable to perforation of the appendix. I believe, although it could not be proved, that such was the source of the abscess in my case, which was also singular in being wholly extra-peritoneal. I presume that in consequence of previous inflammation the appendix had become adherent to the parietes, and that its ulceration took place into the subperitoneal tissue and transversalis fascia, by which, and by the iliac fascia, the escaped gas was directed beneath the diaphragm, and accumulated to such an extent as almost entirely to cover the liver, and mask its percussion area. This fact lends additional interest to the case, and illustrates a difficulty one often experiences in diagnosing between the peritoneal and extra-peritoneal varieties of abdominal abscess. Perhaps the extension of the tympanitic area towards the iliac crest behind was significant of the parietal position of the abscess, as indicating that the gaseous contents lay behind the kidney as well as the liver; although I must frankly confess that I did not consider this at the time, but thought we had to deal with a peritoneal abscess.

As to the diagnosis from a localised basic pneumothorax, there was never much difficulty in this case. The history of the illness clearly indicated an abdominal origin; the pulmonary and pleural signs were justifiably regarded as being due to secondary complications, whilst the physical signs common to pneumothorax and subphrenic abscess were only those producible over any air-containing cavity.

I ought not to conclude this paper without referring to the fact mentioned in Flint's *Medicine*—that, so long ago as 1845, the simulation of pneumothorax by an abscess beneath the diaphragm was described by Drs. Barlow and Wilks, and I am indebted to Dr. Wilks for informing me where to find the record of this case. It is in the *London Medical Gazette*, 1845, vol. i, p. 18, under the title of "Perforation of Stomach with Obscure Thoracic Symptoms." The case was that of a woman who had suffered from gastric symptoms for eighteen months, when she was suddenly seized with intense pain in the left side and shoulder, and great dyspnœa. When the chest was examined there was found to be dulness below the left scapula, and amphoric respiration was heard there and as far as the loins. Metallic tinkling was also occasionally audible; sometimes there was a splashing sound on succussion. The report (by Dr. Wilks) states that:—"The stethoscopic signs, particularly the amphoric respiration, coupled with the severe symptoms, satisfactorily proved to many that the case was one of pneumothorax. Dr. Barlow was opposed to this opinion, and persisted in referring the amphoric and metallic sounds to the stomach, and mentioned a case in which a perforation of the stomach had communicated with a large peritoneal abscess." The patient died, and the condition proved to be such an abscess, which communi-

cated with the stomach by two perforations. The diaphragm was forced up to the fourth rib, and there was much sero-purulent fluid in the pleural cavity. Dr. Wilks attributed the amphoric sound to the passage of air from the stomach to the abscess, influenced by the movement of the diaphragm. Dr. Barlow thought that it was rather due to the bronchial sounds modified by the stomach and abscess cavity.

In his letter to me Dr. Wilks says, with reference to this case: —".....I should not have thought such cases so excessively uncommon. It was the first I had met with, but I was then only a student, and was then, as now, quite innocent of bringing anything original before the profession..... The interest of the case to me and why I have often alluded to it, was to try and make the students distinguish between the physical conclusions drawn from physical signs and the inference. Air and water in a circumscribed cavity produce certain signs, and, because heard in lower part of chest, pneumothorax is diagnosed."

It need hardly be said that many abscesses occur beneath the diaphragm which neither contain gas nor have any connection with the gastro-intestinal tract. The diaphragm may be so displaced upwards as to give rise to the mistaken diagnosis of empyema just as the gas-containing variety may simulate pneumothorax. Drs. Fagge and Taylor have recorded such cases in *Guy's Hospital Reports*, third series, vol. 19, cases mostly where the abscess has been primarily hepatic, and where also eventually the diaphragm has been perforated and empyema been produced. Quite recently there have been two cases of this class in the Middlesex Hospital under the care of my colleague, Dr. Finlay. In the one, a large perinephric abscess on the right side had burrowed upwards and displaced the diaphragm considerably. The abscess was diagnosed and treated as a basic empyema, being twice incised and drained; but it was wholly below the diaphragm, which was, in consequence, pierced by the incision. The other was a case of hepatic abscess which had perforated the diaphragm and given rise to empyema. The occurrence of such cases may be usefully borne in mind when dealing with a supposed localised empyema at the right base; but the scope of my paper does not allow me to do more than simply refer to them.—*British Medical Journal, March* 23, 1889, *p.* 639.

23.—ON THE TREATMENT OF GASTRIC ULCER.

By William M. Ord, M.D., Physician and Lecturer on Medicine at St. Thomas's Hospital, London.

My experience of the treatment of gastric ulcer leads me, in the first place, to attach great importance to simple physical rest. A physician is commonly called upon to deal with two very distinct

classes of cases: first, those occupying beds in hospital; second, those consulting him at his own house, or coming as out-patients. The in-patients, kept in bed, and debarred from all movement that can be avoided, make much better progress than the others who are moving about. I must admit that, in private practice, I have experienced great difficulty in keeping patients as completely at rest as I could wish, and that the results of treatment of them are far less satisfactory than those obtained in hospital. I commend this point to general practitioners, who have much greater opportunities of following the patients' symptoms from day to day, than are open to the consulting physician. In practice, I hold it to be right that the consulting physician should always advise the patient to secure the care of a medical man near at hand, and under his guidance to carry out the first principle of treatment—physical rest.

Next comes physiological rest. No one can doubt that all mechanical indigestibles must be forsworn. All experience shows that, in relation to the comfort of the patient, meats, uncooked food of all kinds, all mechanical indigestibles, and stimulants must be forbidden. After this large excision, idiosyncrasies of the patient have to be considered. Some can take milk and eggs, and soft farinaceous foods with impunity, while meat juices irritate them. Some can take the meat juices and not the milk food. Some can take nothing whatever without great suffering. Those who can take the milk and egg foods may leave us easy on the subject of their nutrition. Those who can take only the meat juices have but imperfect sources of nourishment, and in these cases, as well as in those cases wherein no aliment can be taken without pain, we are compelled to administer aliment by the rectum.

Of late years a good many nutrient suppositories have been invented, and have been much vaunted. They have a certain advantage in being more easily retained than fluid enemata, when the rectum is irritable. But, in a general way, I believe that fluid enemata are much more effective. They should consist of from four to six ounces of beef-tea and milk in equal proportions, with a drachm of Berger's "liquor pancreaticus," and should be prepared at a temperature of about 98° Fahr. Egg may be in certain cases added, and, where there is great exhaustion, a small proportion of brandy. In more than one case of gastric ulcer with severe symptoms, I have used such enemata for a month, allowing nothing to be taken by the mouth save water, with the result that the nutrition of the patient has actually improved.

As regards treatment by drugs, I venture to say that generally very good results may be obtained. The treatment must be a good deal determined by the proportion between the symptoms of gastric ulcer and of those symptoms supplemented by gastric catarrh. Supposing that we have the symptoms of gastric ulcer

without gastric catarrh, I am in the habit of giving twenty grains of carbonate of bismuth with ten grains of carbonate of soda, and ten drops of tincture of belladonna, three times a day. If there be much sign of gastric catarrh, what I am accustomed to call Brinton's mixture, viz., ten grains of bicarbonate of potash, three grains of iodide of potassium, and three drops of dilute hydrocyanic acid in infusion of gentian, three times a day, is prescribed. The use of this mixture for a week or a fortnight will generally subdue the catarrh, and the subsequent use of the bismuth mixture rarely fails, in uncomplicated cases, to effect a cure.

Complicated cases will be generally much relieved by this, but rarely cured. By complicated cases I mean those to which I have already alluded, in which there are signs of adhesion or of deep ulceration. We must not forget the acute complication of hemorrhage and perforation. In the treatment of persistent small hemorrhage, I am not inclined to the use of astringents. As a rule, I should rely on a careful examination for the symptoms of the case, and should direct treatment to the removal of the causes of hemorrhage, rather than use astringents in a blind way. I should use methods for the reduction of gastric congestion, for the neutralisation of the excessive acids of the gastric juice, for the relief of hepatic congestion.

In the large hemorrhages of the simple ulcer, the whole business is generally over before treatment can be instituted. But this does not mean that treatment is unnecessary. A large quantity of blood will have generally made its way into the intestines, where it proves a source of great irritation demanding instant relief. It is my practice to administer, according to the needs of the case, sulphate of magnesia, or sulphate of soda, with dilute sulphuric acid—a hinderer of decomposition—at intervals of two or three hours, until free evacuation has been obtained. These alkaline sulphates appear to me to be the most suitable aperients in all cases of gastric ulcer complicated by constipation. Given early in the morning in warm water, they lend effective aid to the operation of the mixtures already mentioned.

In what I have said I have given from individual experience. There are some physicians who advocate the use of caustics, such as sulphate of copper and nitrate of silver. There are others who advocate the use of opium and astringents; but all I can do is to tell what, in no inconsiderable experience, has appeared to me to be the most effective mode of treatment.

I should like to add a few words on the value of iodide of potassium in the treatment of gastric catarrh, whether simple, or complicating ulcer, or complicating malignant disease. Administered with the addition of some bicarbonate of potash or soda, it is, in my experience, a drug of inestimable value. It speedily removes a simple catarrh. It thereby removes the primary obstacle

to the treatment of ulcer; and, in malignant disease, it will often, for a time, so far mitigate the symptoms as to make the patient think he is being cured. I have often found it in malignant disease relieve the patient for a time, and, I think, prolong life, with marked diminution of suffering.—*American Journal of Med. Science, June* 1889, *p.* 560.

24.—ON TWO CASES OF ACUTE TYMPANITES OF THE ABDOMEN TREATED BY ACUPUNCTURE.

By Thomas Oliver, M.D., M.R.C.P., Physician to the Royal Infirmary, Newcastle-on-Tyne.

Towards the end of last year I was in a neighbouring town, when a medical friend, with whom I was in consultation, asked me casually to see another case with him of intestinal obstruction, all but moribund. No stool had been passed for over ten days. The man, about middle age, had at the commencement of his illness experienced severe pain in the abdomen, localised in the right side, and had vomited. The pain and vomiting, now fæcal, had been unrelieved by ordinary medicinal measures. When I saw him, he was propped up in bed, much exhausted by recent vomiting of a thin fluid fæcal matter, and which was the cause of a most disagreeable odour in the room. The pulse was extremely small and rapid; the tongue dry and brown; there were cough and dyspnœa; the abdomen was enormously distended and painful; the heart's sounds were extremely feeble, and numerous bronchial and mucous râles were audible all over the chest. No dulness was detected in the abdomen which was generally distended and painful, coils of intestine being seen and felt through the abdominal parietes. The urine was high-coloured and scanty. As everything almost had been tried, yet without effect, and it was clear that the patient would die unless soon relieved, I suggested puncture of the intestines, which was agreed upon. Into the intestine, at several places, a large hollow needle was at once driven, and there escaped in a few minutes a large volume of very fetid gas. In addition to this escape of gas, there came away through the needle at one spot a small quantity of the same thin brown fæcal matter that the patient was vomiting. The relief was immediate and permanent. On the following day, when I saw him, the pain, vomiting, and distension of the abdomen had disappeared, and, the lungs being now clear of all râles, dyspnœa was no longer present. The use of the long tube, which had hitherto failed to remove anything per rectum, was now successful, but only moderately so. By degrees all his urgent symptoms disappeared, and the signs of intestinal obstruction vanished, but not until five or six days after my first visit, when he passed a slough of small intestine, much invaginated within itself and measuring four or five inches.

The man made a good recovery. But for timely acupuncture, this case would have ended fatally.

The second case is equally interesting. A few weeks ago Dr. Arnison asked me to see in consultation with him a gentleman aged forty, who was the subject of chronic intestinal obstruction. No stool had been passed for several days, in spite of the administration of reliable drugs and the repeated employment of enemata carefully administered and carried well up the intestine. The patient, though not the subject of such urgent symptoms as detailed in the preceding case, was gradually getting worse, and it was clear that unless relieved he would soon pass beyond the reach of human care. In fact, my object in seeing him was more with the view of giving an opinion as to the advisability of abdominal section than anything else. The pulse on the whole was good, and vomiting absent, but I never saw such a distended and tympanitic condition of the abdomen. The patient was stout to begin with, and was therefore not a good patient for operative measures of any kind. But the chief difficulty lay in the extreme distension. It was apparent to Dr. Arnison and myself that, even if the abdomen were opened—the treatment in one sense called for,—it would be almost impossible to find the seat of obstruction or replace the distended coils of intestine. Acupuncture was therefore agreed upon. Into several coils of intestine Dr. Arnison carried a large hollow needle. It took several minutes to empty the intestine, the air rushing out the while with a loud hissing noise. Relief, however, was immediate. On the following day a large stool was passed, and in a few days thereafter the patient, who had been the subject of intestinal obstruction from extreme atony of the bowel, was quite convalescent, and has ever since remained well.

These cases, amongst others which I have met with, fully illustrate the importance of a line of treatment so ably advocated by Dr. Ogle in his monograph on the treatment of abdominal distension by acupuncture. Having had such satisfactory experience of its utility, and never yet having witnessed any bad effects from it, I place these results before the profession in advocacy of its employment.—*Lancet, July* 6, 1889, *p.* 13.

25.—DR. FITZ'S SUMMARY OF CONCLUSIONS RESPECTING ACUTE PANCREATITIS.

By Reginald H. Fitz, M.D., Shattuck Professor of Pathological Anatomy in Harvard University.

Acute inflammation of the pancreas is both a well-characterized disease, and one which is much more frequent than is generally thought. It is of great consequence that it should be recognised, for the following reasons:—It represents a serious complication of what, by itself, is a relatively simple affection, viz., gastro-duode-

nitis. It is an important cause of peritonitis, and one readily overlooked. It has been repeatedly confounded with acute intestinal obstruction, and has thus led, in several instances, to an ineffective laparotomy; an operation which, in the early stage of this disease, is extremely hazardous.

Acute pancreatitis commonly originates by the extension of a gastro-duodenal inflammation along the pancreatic duct. It may also be induced by the occurrence of hemorrhage in the pancreas. This may be of traumatic origin, although usually arising from unknown causes. The pancreatic hemorrhage may likewise be secondary to inflammation of the pancreas.

The anatomical varieties are the suppurative, hemorrhagic, and gangrenous. The first may be acute, but is usually subacute or chronic. The second is generally peracute or apoplectiform. The gangrenous variety runs an acute course.

Suppurative pancreatitis may result in an evacuation of the abscess into the stomach or duodenum, or it may open into the cavity of the great omentum, which, transformed into a large peritoneal abscess, may, in turn, open into the digestive tract. Pylephlebitis and abscesses of the liver may follow. Disseminated fatnecrosis is comparatively infrequent.

Hemorrhagic pancreatitis usually proves fatal in from two to four days. The gross lesions are then those of hemorrhage within and near the pancreas, extending into the subperitoneal fat-tissue, perhaps as far as the pelvis. Peripancreatitis may be expected and disseminated fat-necrosis is common.

Gangrenous pancreatitis, although it may be secondary to a perforating inflammation of the gestro-intestinal or biliary tracts, usually results from a hemorrhagic pancreatitis, and proves fatal in the course of a few weeks. The gangrenous processes extend to the parapancreatic tissue, and produce more or less complete sequestration of the pancreas. The peritoneal wall of the omental cavity becomes inflamed, that covering the pancreas may be destroyed, and the sequestrated gland may lie in the omental cavity, soaked in pus, and attached only by a few shreds. Both pus and pancreas may be discharged into the intestine. Splenic thrombophlebitis is not uncommon, but hepatic abscesses are rare. Disseminated fat-necrosis is frequent.

The common symptoms of acute pancreatitis are sudden, severe, often intense, epigastric pain, without obvious cause, in most cases followed by nausea, vomiting, sensitiveness, and tympanitic swelling of the epigastrium. There is often extreme prostration, frequent collapse, low fever, and a feeble pulse. Obstinate constipation for several days is the rule, but diarrhœa sometimes occurs. If the case does not end fatally in the course of a few days, recovery is possible, or a recurrence of the symptoms in a milder form takes place, and the characteristics of a subacute peritonitis are developed.

The symptoms are essentially those of a peritonitis, beginning in the epigastrium and occuring suddenly, during ordinary health, without obvious cause. The diagnosis, therefore, is based on pain, tenderness, and tympany, limited to the region of the pancreas, and on the gradual development of a deep-seated peritonitis in the same place.

The differential diagnosis lies, practically, between an irritant poison, perforation of the digestive or biliary tract, and acute intestinal obstruction. An irritant poison is excluded by the history of the case and by the examination of the vomit. Perforating ulcer of the stomach or duodenum is to be excluded by the absence of pain after eating, hemorrhage from the digestive canal, and cachexia. Acute perforation of the transverse colon is rare, and the resulting peritonitis progresses more rapidly and is likely to be general. Perforation from gall-stones is usually preceded by attacks of biliary colic and jaundice, while the seat of the pain is rather in the region of the gall-bladder than in that of the pancreas. Acute intestinal obstruction is most likely to give rise to doubt. It is to be eliminated by determining, through injection, the patency and capacity of the large intestine; by the rarity, in the epigastrium, of an obstructed small intestine; by the immediate presence of localized tenderness, and by the usual absence of conspicuous general tympany, or limited distention of intestinal coils.

It is evident that all treatment, at the outset, can be nothing but palliative. With the formation of pus in the omental cavity comes the opportunity for the surgeon. The possibility of the successful removal of the gangrenous pancreas is suggested by the healthy condition of a patient seventeen years after he had discharged this organ from his bowels.

An unexpectedly early verification of the above conclusions has occurred within the week following the delivery of this lecture. The case was that of a well-known gentleman of Boston, and presented so fully the symptoms above mentioned, that, when called as consultant, I was able to make a diagnosis of acute pancreatitis, which was eventually substantiated. The following is a brief summary of the essential features of this case, which will, hereafter, be more fully reported:—The patient was suddenly seized, Feb. 19th, while apparently in his usual good health, with a severe pain and tenderness a short distance above and to the left of the navel. This was followed by vomiting and a certain degree of prostration. The administration of nearly a grain of morphia gave relief. I saw him in the evening, and during the subsequent two days of his life. He died on the third day. The localized pain was more or less constant, with occasional severe twinges, and was also to be elicited by intercostal pressure in the splenic region. The sensation of a constricting band in the epigastric region was likewise mentioned. At the close of the second day the lower abdo-

men became sensitive in spots. There was vomiting on the first day, but not later, and the bowels were confined. The abdomen was somewhat distended and dull, except in the epigastrium. The pulse was moderately accelerated and the temperature slightly elevated. The diagnosis lay between acute, mechanical intestinal obstruction, perforative peritonitis, and acute pancreatitis. The majority of the consultants agreed to the first as the most probable condition, and advised a laparotomy, which was performed on the third day. Spots of fat-necrosis were seen in the omentum, but there was no evidence of mechanical obstruction. At the post-mortem examination the characteristic appearances of hemorrhagic pancreatitis were found, also numerous spots of desseminated fat-necrosis.—*Medical News, March* 23, 1889, p. 310.

26.—ON THE CŒLIAC AFFECTION IN CHILDREN.

By R. A. Gibbons, M.D., M.R.C.P., Physician to the Grosvenor Hospital for Women and Children, London.

[Dr. Gibbons's paper opens with the narratives of four cases of the disorder described under the above title, in all of which a successful result followed upon careful dieting.]

The cœliac disease, amongst hospital patients, is popularly called "consumption of the bowels," meaning by this one of the several affections to which they apply this term. This disease is characterised by the passage of large, loose, white or whitish, frothy, intensely fœtid motions; by pallor of the skin; wasting; loss of muscular strength, and by the fact that it is most frequently met with in children between 1 and 5 years of age. The youngest child I have seen attacked by it was between 10 and 11 months old. I have seen it in children with perfectly healthy parents, and, indeed, with sisters and brothers in every way healthy. In only one family can I trace any history of struma on the side of the father. No history of tubercle can be traced in the family of any of the patients whose cases are related, except one, and in that, consumption occurred in a paternal uncle of the patient, and in all there is no history of syphilis obtainable, and no reason to suspect it. In most of the cases there is a history to be obtained of gout, either on the side of the father or mother, or in distant relations. The examination of the fæces themselves throws no light upon the matter. In those I have submitted to careful microscopical examination I have never been able to discover anything abnormal, and I have failed to detect any tubercle bacilli, although carefully searched for.

Pathology.—Under this head there is really nothing to be detailed. Examination of the bowel after death has led to the discovery of nothing. There is no sign of wasting of the mucous membrane, of engorgement, or of ulceration, and this statement

refers to the whole of the intestinal tract. I am not aware that any wasting of Lieberkühn's follicles has been detected. The liver and the spleen are not remarkable for anything abnormal. The spleen, however, is occasionally enlarged. The blood usually has signs of anæmia, and except for the excess of small lymphoid particles, might pass for ordinary anæmic blood. As, however, these small particles are not peculiar to this affection, they really need hardly be noticed, for I have myself found them, on many occasions, especially in children suffering from empyema. Therefore, taking all the facts into consideration, it is quite clear that up to the present moment nothing has occurred to throw any light upon the pathology of this extraordinary affection.

Diagnosis.—About this there can be no difficulty whatever, for the signs and symptoms are so clear that they cannot be mistaken. It is, however, of the greatest importance to examine the motions for one's self, for I am certain that if this had been done in several of the cases which have come under my notice, I should not have been the first to discover that the child was suffering from anything beyond a little general debility. About this point one cannot be too strong, for, as there are usually no signs of ordinary diarrhœa, and possibly but one action a day, the nurse, if not alarmed by the fœtor, is apt to think nothing of the bowel, but to be more struck with the pallor and the generally increasing weakness of the child. The signs are so clearly indicative of this one affection, that there is no other with which it could be confounded.

Prognosis.—Unfortunately this is usually grave, and the majority of children suffering from this disease die. I have, however, with the exception of one, in the cases that have come under my observation, had the good fortune to witness their improvement; and I think it was partly due to the careful nursing that they had in their own homes, and to the fact that they have been the children of people who have been well off, and who have been able to give them everything that has been ordered, regardless of expense. I feel certain that this has a great deal to do with the well-being of the children, for, in one case, the second on the list, I am sure that without the most constant care and watching on the part of the mother and nurse, she would have died. As to the time at which death will take place, it is impossible to say, for, however bad these little patients are, they frequently have extraordinary rallies, and seem better for a time; but, without any warning, relapses take place, and after apparently progressing most favourably, they suddenly become exhausted, and rapidly fade away, usually from attacks of watery diarrhœa.

Symptoms and Progress.—The onset is usually gradual, and there is nothing definite to call attention to the disease. The nurse or the mother generally states that the child has been a little out of

health for some weeks, or possibly months, and yet there has been nothing special to cause alarm, with the result that no treatment has been adopted. The child becomes pale and anæmic, the blood evidently being affected, and sometimes there is a puffness about the face. Possibly amongst the first indications, the motions have been remarked by the nurse, and this has generally been owing to the colour being different, but above all, on account of their intensely fœtid odour. This mal-odour is sometimes overpowering, and those who have not encountered can hardly realise it. The motions themselves, as already pointed out, are very large, soft, whitish in colour, and frothy. They resemble very much ordinary oatmeal porridge. The actions may be two or three in a day, but usually there is only one large one, and that may take place at a time to which the child is accustomed. Now and then there are attacks of so-called diarrhœa, that is to say, the child may have frequent evacuations of the bowels, that they may be very loose, and that they may be occasionally watery if the attack is severe, but these attacks of diarrhœa are not an essential part of the disease, except in the cases of some children who have these constant attacks of diarrhœa throughout the whole of the illness. The appetite is poor, usually capricious, sometimes large. The tongue is frequently coated with a whitish fur, at other times perfectly clean. In some cases there are attacks of crampy abdominal pain, possibly due to ordinary colic. These attacks were well marked in case 4. The abdomen is generally soft and doughy, although occasionally distended and hard. The liver is generally unaffected: now and then the spleen is found to be enlarged: no enlarged lymphatic glands can be detected. As a rule, the urine has nothing remarkable about it; occasionally it contains a trace of albumen. The temper of the child seems variable, most frequently he is extremely irritable, fretful, capricious, or peevish. Nothing seems to please him, and altogether he is quite unlike himself. Sometimes he is heavy and languid, complaining of headache, and wishing to lie down a good deal. The special senses seem to be normal. In all the cases that I have examined the various tendon reflexes were unaffected.

The most remarkable sign about these children is that of loss of muscular power, with apparently no great loss of flesh; that is to say, to look at, the children do not seem to have wasted much, but on feeling the legs or arms, it is at once evident how soft and flabby and out of condition they are. A curious point is that they have a great objection to going upstairs, and in one case, one of the first symptoms which struck the nurse as being extraordinary was that the child did not care to mount the staircase, and that she had invariably to be carried up. The progress of this affection is as a rule slow. The children seem to gradually become more feeble, to waste away, and to lose power. Occasionally an attack of watery diarrhœa, in those children who have been accustomed to suffer

from diarrhœa, may carry off the patient. In the case of colicky attacks I have seen a child in imminent danger from collapse. In non-fatal cases recovery is extremely gradual. An important point to note in this connection, is the tendency to relapses, each relapse taking a considerable time to make up for lost ground. When improvement begins to take place, it is usually shown in the healthier condition of the evacuations. The colour becomes better, the motions are more formed, and above all, less copious and less offensive. The child gains in strength, but is a long time before improving in colour. The muscular strength is the last to return, and mounting the stairs, or jumping, are amongst the very last things that can be done. The appetite generally improves but slowly, and is always capricious, or nearly so. Another important point concerning these patients is that the least thing apparently upsets them, and the smallest error in diet will bring on copious actions of the bowels, cause vomiting, or make the child quite ill again.—*Edinburgh Medical Journal, Oct.* 1889, *p.* 327.

27.—TREATMENT OF GASTRO-INTESTINAL CATARRH IN INFANTS—IRRIGATION OF THE INTESTINES.

By Edward P. Davis, M.D., Obstetrician to the Philadelphia Hospital.

In discussing the treatment of gastro-intestinal catarrh in infants, prophylaxis is of major importance. Especial attention should be paid to the infant's ingesta. Infective material should be excluded or neutralized in food and drink. Water should be filtered and boiled before given as a beverage or with milk. Milk should be sterilized, by apparatus designed for that purpose, or by boiling. All albuminoid food liable to decomposition should be thoroughly heated; the many "teas" mixed for infants by meddlesome women are abominations. The nursing-bottle should be frequently scalded, washed in water containing soda, and the rubber nipples should be kept in a saturated solution of borax. When apparatus for sterilizing milk is not available, it may be boiled in a glass fruit jar, which is placed in a pan of water upon the fire; the impervious lid may then be applied, and the milk set away to cool until needed.

It is far better, however, to sterilize milk in the bottle from which the infant feeds. Numerous sterilizers are in the market, the essential principle of all being the same. They consist of a tin or wire rack holding bottles containing milk, which rests upon a shoulder or ledge several inches above the bottom of a closed tin box. The bottles having first been sterilized by boiling water or dry heat, are partially filled with milk, or milk and boiled water. They are then corked by a rubber cork perforated for a glass stopper. The glass stopper is withdrawn, the bottles placed in the

closed tin box, which contains three or four inches of water, and the whole is heated until the water boils for half an hour. The process should be watched as the water heats to boiling, and when that point is reached the glass stoppers are replaced in the rubber corks, and the bottles thus sealed. The bottles are set aside to cool.

When needed for feeding, a teaspoonful of a good extract of malt is added to 4 to 6 ℥ of milk and the bottle is heated in water to a proper temperature, a freshly cleaned rubber nipple is substituted for the rubber cork, and the infant receives its meal from the vessel in which it was sterilized without exposure of the milk to the air. This process may be simplified by substituting for the rubber cork a plug of cotton sterilized by heat. Cotton plugs are in common use as air filters to prevent the access of bacteria in culture experiments, and their use seems indicated to close vessels in sterilizing milk. Extract of malt is preferred to sugar because less likely to ferment.

In hospitals and homes, where a number of children are collected, all diapers should be disinfected by immersion in a solution of bichloride of mercury, 1 to 5,000 or 10,000. With every precaution stools are retained in the diaper for varying periods, and it is well to prevent the sporulation of bacteria during this time. For the child's person, strict cleanliness is necessary; finely powdered boracic acid may be used to advantage as a toilet powder when a tendency to excoriation exists.

The active treatment of a simple congestion of the digestive mucous membrane, with compensatory catarrh, should be the withdrawal of food for several hours, a warm bath, and a free supply of boiled water in small quantities as a beverage; should prostration threaten, whisky and water, or aromatic spirits of ammonia and water, may be given. It is especially true of infants that loss of fluid is felt severely, and a few liquid stools in a young child cause distinct depression. If nature does not move the bowels promptly, castor oil may be given.

Should vomiting of curded milk occur, with pronounced gastric irritation, the stomach may be washed out to advantage. A small soft catheter (No. 8), a short piece of glass tubing, and a longer rubber tube and small funnel are sufficient, the glass tubing connecting the catheter and rubber tubing and serving as an index of the passage of fluid. Boiled water containing a little sodium bicarbonate or sodium salicylate (gr. 1 to ℥ 1) may be employed. The tongue is gently but firmly depressed with the index finger of the left hand, and with the right the oiled catheter is passed backward and downward; meeting resistance a pause is made, the catheter rotated gently, and usually enters the œsophagus without difficulty. The fluid should be poured into the funnel very gently, and allowed to return by siphonage, until it returns clear.

Although gastric ulcer and rupture of the stomach are uncom-

mon in infants, yet in a recent series of experiments made by my friend Dr. Bennett, physician in charge of the Sea Side Home, Atlantic City, to determine the probability of rupturing the gastro-intestinal tract by irrigation, he found on the cadaver that the few cases of rupture occurring on post-mortem irrigation were in the stomach, where beginning ulceration existed. Gastric irrigation should be made with great gentleness and patience, and should be undertaken only when gastric irritation is pronounced. The omission of one or two meals may be followed, if symptoms disappear, by a resumption of sterilized milk and water in diminished quantities; skimmed mutton broth or white of egg water may be employed if milk is not tolerated at once.

Should the case go on to well-marked intestinal catarrh with enteritis a more decided policy must be adopted. An effort should at once be made to remove irritating ingesta from the intestines, to prevent the growth of bacteria, and to feed and support the patient in every possible way. An intestinal antiseptic is indicated, and from experience calomel seems best fitted for an early stage of the disease. In $\frac{1}{10}$ or $\frac{1}{20}$ grain doses, with soda or milk sugar, it may be given every hour or half hour until the stools show a free secretion of bile. For the first six or eight hours food should be replaced by teaspoonfuls of whisky and boiled water or Jacobi's mixture of white of egg and whisky and water, care being taken that fluid in *small* quantities is taken very freely. Temperature may be reduced by the warm or hot bath, a cold cloth upon the head. A spice plaster upon the abdomen may often be used to advantage. If pain and restlessness, with fever, are not controlled by the bath antipyrin in one-half grain doses may replace opium to advantage.

If the antiseptic action of Nature's intestinal antiseptic the bile and calomel are not sufficient to check the growth and invasion of bacteria, intestinal irrigation should be promptly undertaken, *before* prostration supervenes. A soft catheter (No. 11), a connecting glass tube, and fountain syringe are needed. The fluid may be boiled water made alkaline by sodium bicarbonate; thymol 1 to 1000, or sodium salicylate gr. 20 to ℥ 20 of water (the last is highly prized by Dr. Bennett). Through the courtesy of Dr. Waterman, of the clinical staff of the College, I have a case in which intestinal irrigation is indicated. The child is laid across the lap of the nurse who receives it on its abdomen upon a rubber sheet gathered into a pail below. Placing the back of the left hand against the child's nates the oiled catheter is introduced by the right hand and pushed gently into the bowel. As it advances it is held by the thumb and finger of the left hand while the right rotates it; if a decided obstruction presents, it is slightly withdrawn and then advanced.

The catheter may be introduced six or eight inches without difficulty; the fountain syringe should be held from two to three feet

above the patient and fluid allowed to flow freely. The temperature of this fluid should be from 90° to 110° F.; if the child is in collapse, a hot irrigation is a decided stimulant. The quantity of fluid may vary from ℥ 20 to a quart and a half; in collapse, after the fluid returns clear several ounces of hot water or hot whisky and water may be introduced into the bowel for absorption to decided advantage. As you see in the patient before you, while the introduction of the catheter may be resented the passage of fluid is a positive comfort, and it is not an unusual occurrence for infants to fall asleep on the nurse's lap while receiving intestinal irrigation and sleep for an hour or two, the temperature falling considerable. The pressure of the child's body as it lies prone upon the nurse's lap secures a free return flow of fluid, and there is little danger of doing violence to the intestines, for the abdominal wall is undergoing distension and not the intestine, as shown in Dr. Bennett's experiments. Intestinal irrigation may be employed twice daily without injury to the patient, and even more often in urgent cases.

Should the case become chronic, naphthaline or salol may be given to advantage; salol, with mercury and chalk, has served me well. But the maintenance of the patient's strength, the removal of irritating ingesta, the preservation of the conditions most favourable for the circulation of blood, avoidance of passive congestion, and finally the gradual reëstablishment of digestion, these form a problem requiring the most painstaking attention to each case. The fortunes of these little patients are decided often in a few hours, and having tided them over an acute attack a restoration to health may now follow speedily.

If not, the problem of nutrition is first to be solved. Mutton, veal, and chicken broth; flour ball; barley water; junket; a good extract of malt; English breakfast tea and rum (a favourite stimulant for children with Continental physicians), warm milk from the cow have all benefited individual cases. Change of air may turn the tide when nothing else will. Arsenic, in small, but steadily increasing doses, with olive oil, almond flour, or butter may be tried. Oil inunctions are also useful. The peptonizing and pancreatizing powders sold by druggists are often useful in predigesting milk.

But it is my experience and conviction that your success in treating gastro-intestinal catarrh in infants will depend more upon your clear understanding of the causes of the disease and the way to avoid them; your knowledge of its pathology, and your close study of each case and intelligent use of the simplest and most direct methods of antiseptic and supporting treatment than in the drugs you employ or the particular brand of artificial food used. You may not increase the profits of the manufacturers and dealers of patented foods, but it will be to the profit of your patients.—*Philadelphia Medical News, July* 6, 1889, *p.* 2.

28.—ON INFANTILE DIARRHŒA, AND ITS TREATMENT.

By John Lord Babcock, M.D., Assistant to the Chair of Children's Diseases, St. Louis Policlinic.

Considered from a clinical stand-point, infantile diarrhœas may be divided into four classes: First, the simple diarrhœa, that which is caused by intestinal irritation only; second, the inflammatory diarrhœa, due to entero-colitis, or, more rarely, either enteritis or colitis alone; third, the colliquative diarrhœa of cholera infantum; and fourth, the symptomatic diarrhœa which occurs with varying degrees of severity in almost all acute diseases, as well as in the minor ailments of childhood. Simple diarrhœa is due to the presence in the intestine of irritation in the form of fermenting or indigestible material. Its diagnosis and treatment present no difficulty. The catharsis is a conservative action on the part of nature, for the purpose of expelling from the economy useless or dangerous material. It is characterized by a discharge which differs from the normal in fluidity and frequency, and contains some partially digested matters, together with more or less flatus.

It is usually brought to a termination by a few doses of "rhubarb and soda." I cannot speak in too high praise of this simple mixture of our grandfathers. The rhubarb, as is well known, combines tonic and astringent as well as laxative principles, the former asserting itself after the latter has had its effect, and for this reason the rhubarb is the remedy *par excellence* for this condition, in combination with the alkaline soda and a carminative, usually cinnamon, or, perhaps better, a few drops of an alcoholic solution of menthol. By gently stimulating the action of the bowels it aids nature in relieving itself of the cause of the trouble and does not leave the intestines in a relaxed condition. The well-known tendency of neurotic children, as well as of all very young infants, to suffer from convulsions directly after the sudden checking of a diarrhœa should always be borne in mind. It is unwise as well as unnecessary to check *this* form of diarrhœa at once. A dose of bismuth or paregoric would simply shut up in the bowels a mass of fermenting material much better out of them. In four of the cases which form the basis of this paper a simple diarrhœa was changed into a severe type of enteritis by "home treatment" consisting of paregoric, or what amounts to the same thing, "soothing syrup."

The victim of entero-colitis presents a very different picture. Here we have the infant suffering acutely from abdominal pains, the belly is tumid and tender. The child's appetite is lost, it loses flesh and strength progressively, and has from five to twenty movements of the bowels a day. The fæcal matter may be from a pale greenish to a grass green colour, or more or less blood-stained. It usually has a very foul odour. In severe cases which assume the dysenteric type and which are pathologically very similar to

dysentery, the discharges consist largely of a watery, bloody mucus. In this disease there is always some rise of temperature, particularly in its earlier stages. The progressive emaciation becomes very marked when the disease assumes a chronic form. I am convinced that the cause of very many of these cases is the withholding of water from the thirsty infant. Of course decomposing as well as improper foods, together with foul air, play an important part in its causation; but the importance of the deprivation of water as a cause has been too often overlooked. When a child drinks milk or any fluid food because it is thirsty, and not because it is hungry, it inevitably drinks too much. Its digestive apparatus is flooded with milk, which, of course, curdles rapidly, and the stomach has more than it can attend to. The result is simple and prompt. There is felt in that organ a greater or lesser amount of sour fermenting stuff, which makes the baby cross and feverish and thirsty. Its thirst is again quenched—not with cool water—but with another bottle of milk, which it takes eagerly enough, but which simply adds fuel to the fire and makes a bad matter worse. The intestines are soon filled with this fermenting mass, and the result is a simple diarrhœa.

The milk is copiously supplied to the child, however, and the simple diarrhœa soon runs into an entero-colitis, and perhaps the child dies from exhaustion or in a convulsion, while the parents, and possibly the doctor too, talk about a mysterious visitation of cholera infantum—most convenient and most misused of terms. I have made it routine practice to tell mothers to give their children all the water they want, and particularly in hot weather to always give the baby a drink of water before feeding it. Then the child will take milk to satisfy its hunger only, and will not drink too much of it. The child that has a profuse diarrhœa absolutely needs water. There is an actual lessening of the total amount of fluids in the body caused by the serous flow from the bowel. Water never makes a diarrhœa worse. On the contrary, by flushing the kidneys and by furnishing fluid for the general interstitial circulation it lessens the morbid process by stimulating normal tissue-metamorphosis and thus increases the general vitality of the patient. In regard to each case it is necessary to find out first and chiefly about the diet of the child in answer to the questions, "What?" "How often?" and "How much?" Our one hundred and eight cases of entero-colitis presented about this history: First, a harmful diet or deprivation of water, or both, then a simple diarrhœa occurred, followed rapidly by the inflammatory diarrhœa of the disease.

Their treatment may be divided into three parts: First, the regulation of food and drink; second, the disinfecting treatment, including sometimes the high injection per rectum of large amounts of sterilized water; third, the opium and astringent treatment.

The regulation of food consisted usually in prescribing small amounts of the milk-and-cream food previously referred to* with plenty of water. Small doses of calomel at short intervals for two days will often change the character of a foul, green, watery discharge to a much more normal colour and consistence, and put your patients in a condition in which astringents may be given. Rhubarb and all resin-bearing purgatives must be carefully avoided when any inflammation exists. Dysenteric conditions are best treated by frequent small doses of magnesium sulphate. The rule of action in these cases, as in all the diseases of children, must be to give the smallest dose that will do the work, and the indication is to give the stomach and bowels rest by removing from them the irritation caused by the presence of fermenting matters and the products of decomposition and inflammation. To accomplish this we must, as much as possible, disinfect the contents of the alimentary canal, as well as remove them. Thanks to some of the recent additions to our list of drugs, it seems now to be possible to do this in many cases. To that end the diet as above is ordered, or, if the child is vomiting severely, no food at all is allowed for two days, and calomel, gr. $\frac{1}{8}$ to $\frac{1}{10}$ (this for a child of six months) given every hour until five doses are given, and these doses repeated next day, using stimulants as indicated. On the third day, if the green diarrhœa continues, salol, gr. 3 to gr. 5, may be given three times a day, laudanum gt. $\frac{1}{4}$ being added if severe pain exists. We have employed this treatment in seventeen cases, nine of which recovered rapidly, five were lost track of, and three did not do well. If the seat of the trouble is in the large intestine, the action of the salol does not reach it, and in these cases large enemata of sterilized, rather hot, water were given. A large, soft-rubber catheter was used, and it was gently inserted, injecting the fluid meanwhile, for its whole length. In two of these cases the improvement was very marked. The third case, which had been poisoned with brandy by its mother, died the day after the high injection was practised, although the enema relieved it of its colicky pain and tenesmus. If this general line of treatment is followed, you will be pleased to find, in many quite severe cases, that after the small doses of calomel have been taken for two days, if the directions as to food and drink are followed, the entero-colitis has about disappeared, under which conditions we have remaining a case of simple diarrhœa,

* After a prolonged and careful study of this question from the stand-point of practice, we have come to the conclusion that the milk-and-cream food advocated by Dr. Arthur Meigs, of Philadelphia; Dr. Joseph Winters, of New York, and others, is, beyond any comparison, the best artificial food for infants. Its composition for an infant of six months is as follows: Milk, 3 parts; cream, 1 part; lime-water, 1 part; boiled water, 2 parts; and sugar of milk, 1 part. Solution of bicarbonate of soda, three grains to the ounce, may be substituted for the lime-water in case the baby is constipated. This food meets the general indication of resemblance to mother's milk in specific gravity, richness in fats, alkalinity, and sweetness.

which needs a few doses of the rhubarb and soda, to each of which from one-half to a drop of the tincture of nux vomica has been added, to effect the cure.

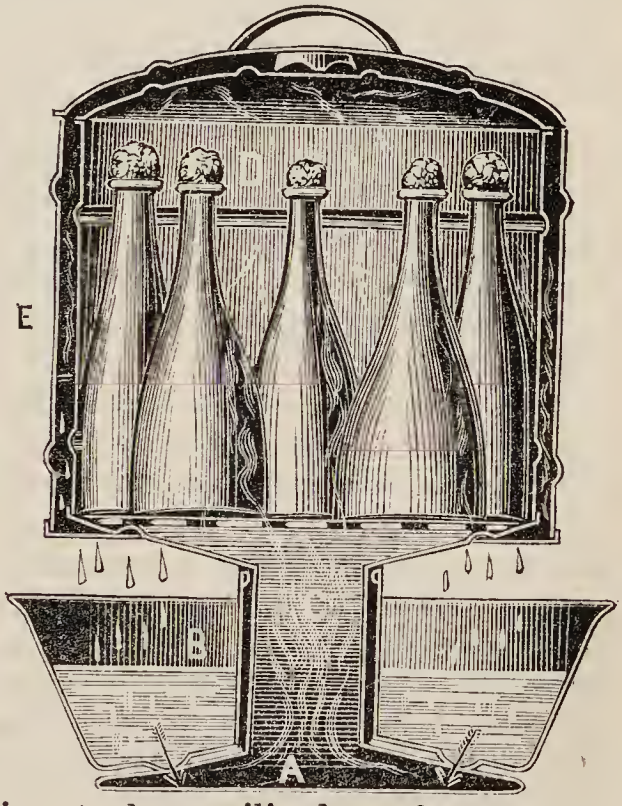
Bismuth or chalk mixture is very useful when the diarrhœa shows a tendency to become chronic, and should both be used in large doses in order to produce positive effects.—*New York Med. Record, July* 13, 1889, *p.* 36.

29.—THE ARNOLD STEAM STERILIZER—AN APPARATUS FOR STERILIZING MILK.

By T. M. Cheesman, M.D., Assistant in Bacteriology, College of Physicians and Surgeons, New York.

The necessity for sterilizing infant food, more particularly during the hot seasons, is my reason for drawing your attention to a sterilizing apparatus, which is known as the "Arnold Steam Sterilizer." It was introduced into the laboratory of the Alumni Association of the College of Physicians and Surgeons by Dr. Prudden, for sterilizing culture media, and its recommendation comes from a thorough test of its merits.

To Professor Soxhlet is due the credit of first sterilizing milk for infant feeding, and to Dr. A. Caillé the credit of introducing the practice to the profession in this country; but the apparatus here shown presents certain advantages over that which is recommended by them. (It is manufactured by Wilmot Castle & Co., of Rochester, N.Y. The price of family size, holding 9 bottles, is $2.50.)



The cooker consists of (A) a flat shallow boiler, holding but a small amount of water, and therefore requiring but a minimum amount of heat to produce steam; (B) a reservoir, which constantly feeds the boiler and causes steam to be formed continuously; (C,D) the steam chest or receiving vessel; and (E) a hood, enclosing a space between itself and the receiver, which is constantly supplied with escaped steam, a device which causes a temperature once reached to be maintained so long as the heat is unchanged.

Sterilization is accomplished by bringing the object to be sterilized to the tempera-

ture of live steam, and maintaining it at that temperature for about forty-five minutes. Boiling for the same length of time, in a vessel the sides of which are exposed to the air, is not efficient, as the temperature in different parts of the vessel is found to vary considerably. This is the main objection to Soxhlet's apparatus, the principle being that of a water-bath. While in the cooker, we have a steam-bath, in which variation of the temperature is prevented.

Numerous tests have shown that with a single Bunsen burner, and ordinary gas pressure, the temperature of 100° C. is reached, in all parts of the receiving vessel, in less than ten minutes. The time required to raise the fluid to be sterilized to the same temperature is found to be directly proportional to its bulk. So that less time is required when the food is in divided quantities. When the temperature of 100° C. is reached, sterilization has commenced, and should be continued for the time specified, forty-five minutes, which time is necessary on account of the great resistance of the spores.

As a sterilizer, the cooker presents these principal advantages: 1, its effectiveness in sterilizing; 2, economy, both of time and fuel; and 3, great convenience, on account of its portability.

The recommendations to any who might use it are as follows:— That the food be prepared as it is to be administered, and that the quantity required for twelve or twenty-four hours' feeding be distributed in eight-ounce flasks or nursing bottles, providing one such bottle for each feeding, so that no unnecessary exposure or transference shall be had. In filling the bottles a funnel should always be used to keep the necks clean, and the fluid should be a full inch below the neck. The bottles should be plugged with cotton, extending well down into the neck, any impurities which this may contain, in the form of moulds or bacteria, being destroyed by the same process which sterilizes the food. The bottles are now placed in the cold receiving-vessel (to prevent breakage) and heat is applied by means of gas, or a kerosene or coal stove. To insure a complete sterilization, heat should be maintained altogether for one and a quarter hour.

Food thus prepared can be kept at ordinary temperatures for an indefinite period, doing away entirely with the use of an ice-pail or refrigerator for keeping the milk sweet.

When the food is to be given the bottle is to be well shaken to mix in the cream, the cotton plug is removed, and the nipple applied to the bottle at once. In cases where it may be necessary to administer food at a higher temperature, the bottle is stood in warm water, as is customary. In regard to the nipples, it is not practicable to sterilize them, as heat destroys the rubber, but they can be thoroughly cleansed by the ordinary methods.— *New York Medical Record, July* 13, 1889, *p.* 39.

30.—ON GASTRIC ANTACIDS IN ACID DYSPEPSIA AND IN IRRITATION OF THE STOMACH WITH VOMITING.

By Sir William Roberts, M.D., F.R.S.

Gastric antacids are employed in two distinct classes of cases—namely, in acid dyspepsia, and, secondly, in a variety of conditions characterised by great irritation of the stomach, often with vomiting, which we seek to allay by the administration of milk mixed with lime-water.

Antacids for Acid Dyspepsia.—You are all aware that sufferers from acid dyspepsia are in the habit of relieving their pains by the use of antacids. I have elsewhere pointed out that the most advantageous mode of administering antacids in these cases is in the guise of the lozenge. A lozenge, properly used, should be deliberately sucked, and not roughly chewed and swallowed. The process of sucking induces a plentiful flow of alkaline saliva, and the presence in the stomach of this bland demulcent secretion is soothing to the angry mucous membrane. The compilers of the *British Pharmacopœia* have provided us with two, and only two, antacid lozenges—namely, the *troch. sod. bicarb.* and the *troch. bismuthi.* The former contains 5 grains of bicarbonate of soda in each lozenge. It is an effective antacid, but it is not a favourable example of pharmaceutical art. It has a peculiarly nasty, soapy taste, which makes the sucking of it a penance; and this, I presume, is the reason why it has not become popular with dyspeptics. The bismuth lozenge is in every way a better article. It owes its antacid properties to $3\frac{1}{2}$ grains of chalk and $2\frac{1}{2}$ grains of carbonate of magnesia. These quantities are, in saturating power, equal to 10 grains of bicarbonate of soda. This is a full antacid dose, and the chalk and magnesia are practically tasteless, and this is a distinct advantage in regard to the active ingredients of a lozenge. The subnitrate of bismuth, to which this lozenge owes its name, has no antacid properties, and is probably inert. It imparts, however, a slight metallic taste, and communicates to the breath a somewhat disagreeable taint; so that its presence in the lozenge may, I think, be regarded rather as a tribute to the decaying art of polypharmacy than as a really useful addition. The bismuth lozenge has won its way into favour with dyspeptics by sheer merit, and inquiries which I have caused to be made among druggists and lozenge-makers show that the sale of this lozenge is steadily and largely increasing all over the country. A bismuth lozenge without the bismuth would be a nearly perfect antacid lozenge, and I would venture to suggest that some such lozenge should be introduced at the next revision of the *British Pharmacopœia.* (Messrs. Squire have at my suggestion carried out this proposal, and have prepared a simple antacid lozenge which contains the same antacid charge as the bismuth lozenge, but

excludes the bismuth. It contains also 1 grain of sodium chloride, which sharpens its flavour, and thus promotes the flow of saliva.)

Besides these officinal articles, there are largely sold in the shops a variety of lozenges and tablets for the use of dyspeptics. None that I have examined fulfil the conditions of a perfect antacid lozenge. The compressed tablets of carbonate of soda and the soda-mint tablets, although effective as antacids, are so unpalatable that they cannot be properly sucked without disgust, and, indeed, those who use them generally swallow them whole in haste—and thus miss the concurrent flow of saliva, which is distinctly helpful to dyspeptics. Some of the antacid lozenges sold in the shops are flavoured with pungent spices to conceal the taste of the soda. All such adjuncts are obviously a mistake. Pungent spices have a strong tendency to provoke acidity in the stomach; and, moreover, any pronounced flavour is objectionable in an article which is used frequently. The alkaline salts of the Vichy springs have been made into very agreeable lozenges—which are sold in this country in sealed boxes. They owe their antacid properties chiefly to carbonate of soda, but partly also to carbonate of potash and to the carbonates of lime and magnesia. They contain besides a small quantity of sodium chloride, which pleasantly sharpens their flavour. These lozenges have a comparatively feeble saturating power, but owing to their full sapid qualities, they provoke an abundant flow of alkaline saliva, and this renders them effective for the relief of gastric acidity. Were it not for their costliness, I believe these Vichy lozenges would soon get into favour with dyspeptics.

As to the comparative merits of the several antacids employed in acid dyspepsia, there is, perhaps, on the whole not much to choose. Certain differences may, however, be noted. The alkaline bicarbonates have a nauseous taste, and if taken in excess they leave an alkaline residuum in the stomach. This is at least abnormal, and perhaps embarrassing, in an organ which requires the presence of an acid to perform its functions. The earthy carbonates, on the other hand, are tasteless, and, owing to their insolubility, they cannot, when taken in excess, cause the neutral line to be over-passed. Perhaps the most advantageous course would be to vary and change the antacid from time to time.

The question may now be put—Is there any harm in the practice of habitually using antacids for the relief of acid dyspepsia? Do dyspeptics purchase present ease at the cost of some future detriment? My attention has been directed to this point for some years. I have, naturally, regarded a practice so artificial with considerable misgivings. But the more extended my experience has become the more I have been satisfied that, with due precautions, the practice is harmless—and I know of no valid

evidence from any other quarter to justify a contrary conclusion. My own experience has been mostly gained from the use of the bismuth lozenges, which I have largely prescribed for a considerable length of time. I have, however, invariably enjoined the following strict rules in regard to their use:—They were not to be used at or near meal times—not sooner than three-quarters of an hour or an hour after breakfast, nor sooner than an hour or an hour and a half after dinner; they were not to be used regularly and systematically, but only as the occasion arose, that is to say, when gastric pain was distinctly present, and was producing more discomfort than a man could be reasonably expected to bear who had the easy means of relief ready to his hands; lastly, the use of the lozenges was to be discontinued if their employment did not cut short the pain. This last injunction leads up to the remark that an antacid dose is sometimes a useful means of diagnosis in cases of gastralgia. It is often impossible to decide from a patient's statements what may be the real nature of the pains complained of. In such a case, if an effective antacid dose fail to give relief, it is sure evidence that the pains are not due to gastric acidity.

Lime Water with Milk.—Lime water is used as an antacid in a very important and serious class of cases. It is a very general practice, as you know, when the stomach is intolerant of food, to administer milk with lime water—and often with the happiest results. But in many instances the symptoms are not allayed, and the milk is vomited up in hard, sour curds. Failure in these cases is often solely due to the feeble antacid property of the lime water. The saturating power of lime water is really very low. Quicklime dissolves in water only to the extent of about half a grain to the fluid ounce—and this is only equivalent in saturating power to one grain of chalk and to a grain and a half of bicarbonate of soda. To reach an effective antacid dose, lime water requires to be given in very large quantities—quantities which are altogether impracticable. Six ounces of lime water are only equal to a single ordinary antacid dose of chalk or bicarbonate of soda. I have repeatedly observed in cases of feeding with milk and lime water that failure was simply due to the feebleness of the antacid charge—and that when a solution of 5 to 10 grains per ounce of bicarbonate of soda was substituted for lime water as an admixture with milk, a favourable result was at once obtained, and the vomiting of hard curds arrested.

A useful notion of the relative antacid potency of the several articles in common use as gastric antacids (as sold in the shops) may be obtained from an inspection of the following table. Ten grains of bicarbonate of soda are taken as a standard antacid dose; and the quantities given of the other articles correspond in saturating value to this standard dose. The results were obtained by

direct alkalimetrical determinations, and are here shown in round numbers :—*Table of Antacid Equivalents.*

10 grains	sod. bicarb.	= 12	grains pot. bicarb.
,,	,,	= 6	,, creta precipit.
,,	,,	= 6	,, carb. magnesia.
,,	,,	= 3	,, calcined magnesia.
,,	,,	= 6	fluid ounces lime water.
,,	,,	= 2	fluid drachms liq. potassæ.
,,	,,	= 1	bismuth lozenge *B.P.*
,,	,,	= 2½	Wyeth's soda-mint tablets.
,,	,,	= 5	Vichy lozenges.

—(From *Sir Wm. Roberts's Address, British Medical Association Meeting*, 1889.)—*British Med. Journal, Aug.* 17, *p.* 374.

AFFECTIONS OF THE URINARY ORGANS.

31.—ON RENAL ANTACIDS FOR THE PREVENTION OF URIC ACID GRAVEL.

By Sir William Roberts, M.D., F.R.S.

The use of alkalising agents for the prevention of uric acid gravel stands on quite as rational a basis as the use of antacids for the relief of acid dyspepsia. It is chemically impossible for uric acid to be deposited in the free state from an alkaline urine ; and as we have the means of harmlessly alkalising the urine at will, we have in our hands, theoretically at least, the absolute power of preventing uric acid gravel. There are, however, a good many practical difficulties in the way. The disposition to uric acid gravel has a certain persistence. It may last intermittently for weeks, months, and even years, and it would obviously be too great a strain on a treatment which is purely preventive to require that a patient should take antacid remedies in sufficient doses and at sufficiently frequent intervals to maintain the urine continuously alkaline for so long a period of time; nor is this necessary. A study of the normal oscillations of the urine at different periods of the day and night leads to the inference that the liability to uric acid gravel only assumes a morbid intensity during a limited portion of the twenty-four hours. The precipitation of uric acid in the kidneys can only take place when there is a concurrence of several favouring conditions. The flow of urine must be very slow, the secretion must be poor in saline constituents, it must be acid or even hyperacid in reaction, and it must be fairly rich in uric acid. Now these several conditions only coincide at one period of the twenty-four hours, namely, during the hours of sleep. The time of sleep is a time of fasting, and therefore a time of hyperacidity of the urine; a time of bodily immobility and recumbency, and therefore a time when the renal stream approaches nearest to absolute stagnation. On

the other hand, during the day and the waking hours the recurrence of the meals keeps the urine rich in saline ingredients, and at a low degree of acidity, or even renders it for awhile actually alkaline; the renal stream is comparatively full and rapid, and its descent from the kidneys is favoured by the force of gravity. During these hours, therefore, the risk of uric acid precipitation is reduced to a minimum, even in persons who show a distinct tendency that way; for, as I have repeatedly had occasion to observe, the urine of calculous subjects exhibits exactly the same cyclical diurnal variations as that of healthy persons, though not always to so pronounced a degree.

It follows from these considerations that if we safeguard the night the day may be generally left to take care of itself. This theoretical deduction is fully in accordance with experience in the treatment of uric acid gravel. In the milder cases a single full dose of the alkalising agent taken at bedtime suffices to prevent the recurrence of the colicky pains and the discharge of uric acid concretions. For this purpose the citrates and acetates seem to be preferable to the bicarbonates. Their effect, I have reason to believe, is more protracted and covers a longer period of time than that of the bicarbonates. The citrate of potash is, on the whole, the best preparation to employ; it has very little taste, and it sits comfortably on the stomach. The dose for an adult should not be less than 40 to 60 grains dissolved in three or four ounces of water. In severer cases a single dose is insufficient, and the early morning urine will still exhibit a morbid disposition to precipitate uric acid. In such cases a second dose should be taken about the middle period of the hours of sleep. This is less difficult to manage with the subjects of gravel than in healthy persons. There is commonly in calculous subjects a certain restlessness, and a certain irritability of the urinary organs, which leads to an increased frequency of micturition, and such persons rarely pass the night without a call to empty the bladder. Advantage should therefore be taken of this break in the continuity of sleep to take the second antacid dose. In this way the entire night and early morning may be effectually guarded.

Cases of uric acid gravel, however, are not always to be got rid of on these easy terms. Now and then instances are met with in which the perversion is so great that the urine is disposed to deposit almost all the twenty-four hours round, and in which the normal alkaline tide, after meals, seems to be altogether abrogated. Under these circumstances additional doses of the antacid are required to afford the requisite protection. But, so far as I have seen, these extreme conditions only last a short time—a few days at most—and there is then a return to a less urgent state of things. It is, indeed, a marked character of uric acid gravel that it oscillates in intensity—it comes and goes in paroxysms—reminding one of the

waviness of gouty phenomena. For this reason it is desirable to frequently note the state of the urine, and to ascertain its greater or less proneness to deposit uric acid, so that the administration of the antacid may be adjusted to the actual needs of the patient. There is no great difficulty about this. If a freshly voided specimen of the urine of fasting—say the urine of the early morning or the urine secreted just before dinner be set aside in a bottle, in a warm place so as to prevent the separation of the amorphous urates, the imminence of precipitation can be easily observed. If precipitation be morbidly imminent crystals of uric acid will appear—perhaps at once, perhaps in an hour or in a couple of hours. If precipitation be not morbidly imminent crystals will not appear for several hours—perhaps not for two or three days. It is possible in this way to gauge pretty accurately the intensity of the morbid tendency, and to regulate thereby the amount and frequency of the antacid dose—or to decide on its discontinuance.

The essential thing in the prophylactic treatment of uric acid gravel is to guard the urine from precipitating within the precincts of the kidney. And we shall practically have attained our object if we succeed, not in altogether preventing precipitation, but in postponing it until the urine have quitted the kidneys. A postponement for a short time—even half an hour—may make all the difference between a precipitation which is fraught with pain and peril and a precipitation which is practically harmless. Now, the protective effect of the antacid extends in this respect a good deal beyond the point at which the urine is rendered actually alkaline. For although all acid urines of medium density precipitate uric acid sooner or later, the time of the occurrence of that precipitation is immensely influenced by the degree of acidity of the urine. Other things being equal, the more acid the urine the earlier is the precipitation, and the less acid the urine the longer is precipitation postponed. An antacid effect, therefore, which is too feeble to render the urine actually alkaline may be quite sufficient to depress its acidity to such a degree as shall postpone the time of precipitation until the urine has escaped from the kidneys. and even from the bladder.—*British Med. Jour.*, *Aug.* 17, *p.* 375.

32.—REMARKS ON THE TREATMENT OF CHRONIC URÆMIA BY MORPHINE—WITH TWO CASES.

By Stephen Mackenzie, M.D., F.R.C.P., Physician to and Lecturer on Medicine at the London Hospital.

[Dr. Mackenzie's paper opens with the complete records of two cases, of which we reproduce here the main points only :—]

Case 1.—A woman, aged 38 years, the subject of chronic diffuse nephritis, in whom the most urgent uræmic manifestation was constantly recurring dyspnœa of a most distressing character. Nitrite

of amyl, alcohol, ammonia, and ether, were all used without effect. It was found that chloral hydrate, in doses of from 10 to 20 grains, along with half an ounce to an ounce of brandy or whisky, was useful in checking the attacks of dyspnœa at their commencement, or if slight; but none of the attacks, however severe, resisted the injection of one-sixth of a grain of hydrochlorate of morphine hypodermically. This was used three times with the best effects. Liquor morphinæ hydrochloratis, and liquor morphinæ bimeconatis, eight or nine times by the month. On no occasion were any toxic effects of morphine observed.

Case 2.—A woman, aged 28 years, the subject of granular kidney in the last stage, and suffering much from headache, nausea, great sleeplessness, and breathlessness. Chloral, bromidia, nitro-glycerine, and inhalations of oil of juniper, were used with little effect. Ten minims of the liquor morphinæ hydrochloratis were given and repeated in three hours, with rapid alleviation of the symptoms. On many occasions afterwards this dose of morphine was given, and always with most marked relief of all the urgent symptoms, so much so that in about fourteen days the patient herself said that she had nothing to complain of. She ultimately succumbed to the combined effects of the renal disease and carbuncle.

It is evident from these cases that morphine may be administered in some cases of Bright's disease with safety. The doses given in these cases were moderate ones, but efficient for the purpose. Much larger doses have been given in uræmia, as will be subsequently mentioned. This fact—the safety of administration of morphine in Bright's disease—is of great importance, as there is a deeply-rooted belief in the danger of administering opium and its alkaloids to patients suffering from renal disease. It is quite possible there is just ground for this belief, but it is equally clear that it does not express the whole truth. It is obvious that further inquiry is necessary to explain how it is that, as commonly asserted, even small doses of opium and morphine are followed by symptoms of fatal narcosis in some cases of kidney disease, whilst in other cases the same doses, or doses three or four or six times as great, are borne with impunity even when pressing symptoms of blood contamination are actually present. The facts, though at first sight contradictory, are not irreconcilable. It is possible that morphine may induce narcosis more readily in patients suffering from Bright's disease than in those whose kidneys are healthy, and that at the same time, in some cases of Bright's disease, a poison may be present in the blood that is antagonised by morphine. For it is a fact that in the above cases and others morphine has been given not only without danger in some cases of Bright's disease, but, what is of greater importance still, with positive advantage, removing distressing and dangerous symptoms. I may state that what led me to employ morphine in these cases was the reported good effects of

injections of this drug in cases of uræmic convulsions, and it occurred to me that, as it removed some of the most severe symptoms of uræmia, it would probably be of service in the treatment of other phenomena dependent on the same cause. The treatment was successful, but experimental. In therapeutics we are guided by one of two principles—the results of experience or the empirical method, or the rational or scientific method. On discovering that a remedy is successful, we are not satisfied until we have found, or tried to find, a reason for its success, for we all like to have a reason for the faith that is in us. Having found, as others have previously done, that morphine is useful in uræmia, I will next proceed to discuss its probable *modus operandi.*

It is now generally agreed that (1) uræmia is a poisoning of the nervous system—a toxæmia; (2) the poison is developed within the body of the sufferer—auto-toxæmia. All recent researches go to prove that the poison is not simply urea, though urea is certainly poisonous. The conclusion has long been reached by all workers at the subject—Grainger Stewart, Dickinson, Bartels, and others—that the poison is not one, but several. Bouchard claims to have been able to determine the existence of seven distinct toxic substances combined together in the most variable proportions under different circumstances, of which two were convulsivant, one of the two being the colouring matter or contained in it; one (probably urea) diuretic, one narcotic, one sialogogue, one pupil-contracting, and one temperature-reducing. He traces the toxicity of the urine to the four following sources: 1. Aliments, and more especially their potassium compounds. 2. The absorbed products of intestinal decompositions. 3. Secretions, such as the bile, saliva, &c. 4. Tissue degenerations. He further finds that the toxicity of the urine varies both in kind and degree at different hours of the day and night. Researches such as those conducted by Bouchard, Feltz, and Ritter, and others, whilst they require repeated confirmation, are very suggestive in serving to explain both the varying symptoms of uræmia in the same patient or in different patients in a way not hitherto possible.

Uræmia, then, is a poisoning of the nervous system, and the poisons are formed within the body of the patient. How is it to be treated? There are three principles: (1) To eliminate from the system the poisons already present; (2) to counteract the poisons; (3) to prevent the further formation of poisons. Treatment to be of permanent good must always be directed to the first and last aims. The first we attempt by promoting the action of the skin by hot-air baths, packing, &c., and by the use of diaphoretics, especially jarborandi or pilocarpine; by carrying off waste products and their decompositions from the bowels by means of hydrogogue cathartics; and by increasing the flow of urine by vegetable and saline diuretics. The last aim, the prevention of the formation and

the absorption of further poisons, by greatly limiting the nitrogenous diet, as by placing the patient on an exclusively milk diet, and by controlling intestinal decomposition by certain drugs. But whilst we are endeavouring, as should be done in every case, to get rid of the poisons and prevent further formation, our patient may succumb to the effects of those present. Here comes in the second principle of treatment—namely, the attempt to counteract the poisons. Every bane has its antidote. The counteraction of the poisons is not only of service in minimising the effects of the poisons, but is of further help in enabling us to gain time to carry out the other indications already discussed. Thus in uræmic convulsions experience has taught that the damaging and often fatal results are held in check by inhalations of chloroform and by the internal or rectal administration of chloral. Morphine has been used, more especially by American physicians, for the same purpose in these cases, and it is claimed with better results.

It will have been noticed that the most prominent symptom in the first case, and a distressing symptom also in the second, was difficulty of breathing—uræmic dyspnœa, or so-called renal asthma. This, in its typical form, is not a very common symptom of uræmia, though I should not, from my own experience, have thought it was so rare as it appears to have been in that of Sir William Roberts. This uræmic dyspnœa merits some consideration. It generally comes on, often suddenly or rapidly, in the evening or early night, is often very intense, lasts for some hours, and gradually passes off in the morning. It returns night after night, and the patient may be quite free from dyspnœa in the daytime. I have known such cases diagnosed as ordinary asthma, the renal origin being unsuspected. I have long been in the habit of teaching that, when such a case is examined at an early stage of the attack—that is, during the first few nights—it is remarkable how little is to be heard, differing altogether in this respect from the noisy cooing rhonchi heard in bronchial asthma. I am interested to notice that Dr. Carter makes the same observation. Dr. Sutton is the only other physician whom I have heard direct attention to this point. Later in the attack, bubbling râles and crepitations are heard, indicating the occurrence of œdema of the lungs. It was for this uræmic dyspnœa especially that the morphine was prescribed. I have for some years been accustomed to treat such cases, in addition to the measures indicated under principles 1 and 2, by means of amyl nitrite, nitro-glycerine, chloral with and without alcohol, ammonia and ether, inhalations of oil of juniper, Himrod's cure, chloroform, &c. One of the worst cases of uræmic dyspnœa I have ever observed I saw recently with Dr. W. J. Mackenzie, of Liverpool-road, Islington. I prescribed small doses of nitro-glycerine, frequently repeated, and, if it failed, morphine. The dyspnœa was greatly relieved, I subsequently learned, by the nitro-glycerine. It will be

observed that morphine was not prescribed in the cases I have narrated until several of the remedies above mentioned had been ineffectually tried. The relief afforded by the morphine was extremely prompt, and equally successful in each recurrence of the attack. I think all the facts of uræmic dyspnœa, its periodicity, sudden onset, and relief by antispasmodics, point to a spasmodic neurosis due to poisoning of the nerve centres. Dr. Carter, with, I think, great probability in his favour, suggests that the spasm is of the blood vessels rather than of the bronchial tubes. This accounts for the absence of auscultatory signs in the early stage, and I think the subsequent pulmonary œdema is another point in favour of Dr. Carter's contention. The high arterial tension, on which Traube and Dr. Broadbent have deservedly laid so much stress in uræmia, due to spasm of the arterioles and capillaries, the great rapidity of the heart's action, the cyanosis and clammy sweat noticed in Case 1, all support this view. If this be the case, then, as Dr. Carter writes, we may anticipate the time when a physiological antagonist shall be discovered capable of unlocking the spasm and relieving the distress as promptly as atropine does in muscarine poisoning. I venture to suggest that this is how morphine acts in relieving the dyspnœa of Bright's disease. It counteracts the poison, whatever it may be, that causes the spasm of the pulmonary arterioles (or bronchioles).

Headache and convulsions are very common symptoms of uræmia. The former was present in both my cases. The immediate cause of both headache and convulsions, apart from or in connection with Bright's disease, has been much discussed. There is a good deal of evidence in favour of arterial spasm being the immediate exciting cause of each. This does not of course explain the pathogeny of headache or epilepsy, because we have to look further back for the cause of the spasm of the arterioles. In uræmia we have this to hand. We know we have a poison or poisons in the blood, and we have evidence of spasm of the bloodvessels, so that we are able to connect the cause with its effect. I think we are justified in referring the relief of the headache as well as the dyspnœa to the influence of morphine in antagonising the poison.

Uræmic convulsions were not present in my cases, but I shall immediately refer to their treatment by morphine. The success of morphine in the treatment of uræmic convulsions I should also refer to counteraction of the poison that excites spasm of the arterioles in the cerebral cortex, which is the anatomical substratum of the motor phenomena. As I have already stated, at the time I used morphine in the narrated cases I had only read brief references to the experience of Dr. Loomis and others in the treatment of uræmic convulsions. I have since consulted the original paper of Dr. Loomis, which appeared in the *New York Medical Record*, 1873, p. 365. Here will be found some very striking cases,

examine the nose, and remove any obstruction there may be to the free passage of air over the Eustachian orifices or any source of inflammatory changes.—*Lancet, July* 13, 1889, *p.* 66.

16.—ON HAY FEVER AND HAY ASTHMA.

By F. De Havilland Hall, M.D., F.R.C.P., Physician in charge of the Throat Department, Westminster Hospital.

The return of the hay season and the prospect of there being an unusually abundant crop this year have induced me to direct attention to hay fever, which is a subject of ever-increasing interest, more especially as with advancing civilisation it appears to be gradually becoming more prevalent. Sir Andrew Clark struck a true note when, in the Cavendish Lecture, he emphasised the doctrine that there are three great factors concerned in the evolution of hay fever: (1) A nervous constitution or idiosyncrasy, sometimes inherited and sometimes acquired; (2) a local condition of irritability, involving the nervous, vascular, and cellular constituents of the affected parts, and which, when excited, disturbs the chemical, morphological, and secretory changes taking place therein; (3) external, exciting, or determining causes—i.e., the agents which are capable of calling into action the irritability of the parts concerned. The first of these factors is so vague, and is so little susceptible of any direct treatment, that it will be out of place to discuss it at any length in a paper designed to be practical. As regards the third factor, there is an overwhelming weight of evidence in favour of the view that, in this country at all events, the most potent external exciting cause is the pollen of various grasses. Still, there are cases in which other irritants, such as ipecacuan, dust, or even touching certain zones of the mucous membrane of the nose, will induce a train of symptoms indistinguishable from hay fever, and, as is well known, a bright light or great heat will oftentimes start an attack in persons subject to the affection. This brings me to the consideration of the second factor, the condition of irritability of the nasal mucous membrane. In spite of what has been done in America and in Germany, the interior of the nose has received too little attention in the treatment of hay fever. Notwithstanding the extreme views to which his enthusiasm led him, there can be no doubt that Hack did good service to medicine by pointing out that changes in the interior of the nose play a prominent *rôle* in the production of symptoms in other organs, as examples of which may be cited cough, migraine, supra-orbital neuralgia, giddiness, redness and swelling of the nose, etc.; but it is in hay fever, asthma, and paroxysmal sneezing that we meet with the most pronounced examples of these reflex neuroses. The changes met with in the nose in cases of hay fever are usually of a hypertrophic character

—i.e., they constitute the condition known as hypertrophic rhinitis; or they may be more limited, consisting only of a puffy swelling of the inferior turbinated bodies, or of an enlargement of the posterior extremities of the same; in some cases the middle turbinated bodies are chiefly affected, or one or more polypi may be present, or there may be some abnormal condition of the septum. In a case seen last autumn, a gentleman who had been a great sufferer for many years from hay fever ceased to be troubled as soon as a perforation in the septum occurred, thus apparently proving that the irritable zone from which the reflex started was situated on the septum. Be the local changes what they may, the paroxysm of hay fever is invariably accompanied by swelling and engorgement of the erectile tissue, which forms so important an element of the inferior turbinated body, but which is also present in other parts of the nasal mucous membrane; and following this there is an increased secretion, which is at first purely serous, but which may become muco-purulent.

In treating a case of hay fever, the three factors concerned in the production of the disease must be borne in mind. It will, therefore, be desirable in the first place to improve the general health of the individual as far as possible. There can be no doubt that in many cases the injudicious use of alcohol aggravates the severity of the disease. The depression and exhaustion produced by hay fever are oftentimes so great that the patient has recourse to stimulants to counteract these effects; but though he may experience temporary relief, in the end alcohol in any quantity only aggravates the local trouble, to say nothing of the more remote evils that may result from its use. Sir Morell Mackenzie recommends one grain of valerianate of zinc with two grains of the compound assafœtida pill, to be taken two or three times a day. Tincture of opium in five to ten minim doses, either alone or in combination with the same quantity of the tincture of belladonna, has been highly praised. I frequently order a mixture containing from ten to twenty grains of the bromide of potassium and three minims of Fowler's solution. The bromide allays the nervous erethism met with in hay fever, while the arsenic has a tonic effect. Antipyrin, in doses of from ten to thirty grains twice a day, has recently been found very efficacious. It appears to have an anæsthetic action on the sensory and secreting nerves of the nasal fossæ. As regards the second point—the removal of the patient from the exciting cause—this can be effected by sending him to the seaside, or, still better, for a voyage. If neither of these plans be practicable, means must be taken to exclude the pollen, etc., by wearing goggles, and having the nostrils plugged with carbolised wool when out of doors, or a silk gauze veil, doubled, may be worn over the face. But from my experience the measures detailed above are merely palliatives; they may render

life in the summer months a little less miserable to the unfortunate sufferers from hay fever, but there is no pretence that they can effect a cure, so that with every returning June the same wearying round has to be gone through. The only plan which affords a hope of giving permanent relief is by directly treating the local condition which is the fundamental cause of hay fever. That there is in this disease a preternatural irritability of the Schneiderian membrane, which renders it liable to respond to the effect of influences that would be entirely innocuous if applied to a healthy tissue, is, I think, pretty generally admitted, and this is the explanation of how it comes to pass: that though thousands are exposed to sources of irritation, such as the pollen of certain grasses, only an exceedingly small number suffer any inconvenience. Sir Andrew Clark, in the lecture to which I have already referred, proposes to exhaust this irritability by the application of a powerful stimulant, and for this purpose he employs a mixture of one ounce of glycerine of carbolic acid, one drachm of hydrochlorate of quinine, and the one two-thousandth part of perchloride of mercury, made into a solution by the aid of heat. With this he swabs out the interior of the nose, and claims a fair measure of success for the plan. The method of treatment which has been more largely employed in America than in this country is, however, the one which commends itself to my judgment, as being at the same time based on scientific principles, and being also free from risk, and attended with but comparatively little pain. I allude to the employment of the galvano-cautery. The mucous membrane of the nose must first be rendered anæsthetic by the application of a 20 per cent. solution of the hydrochlorate of cocaine, and then the thickened tissue of the inferior or middle turbinated body, as the case may be, is to be freely and deeply scored with the galvano-caustic blade. In some cases I find it is better to use a fine point, as the deeper parts can be more thoroughly cauterised with this than with the blade. The smarting after the cauterisation may be diminished by introducing into the nostrils wool smeared with carbolised vaseline. Even a single application will sometimes effect a great change for the better, but usually several sittings are required before complete success is attained. As regards the use of a solution of cocaine applied to the nose, the expectations which were formed of its efficacy in hay fever when the drug was first introduced have not been realised. Though the immediate result of the application is to produce an alleviation of the more distressing symptoms of the disease, the effect soon passes off, and the application has to be renewed if relief is to be obtained. As a result of the dilatation of the blood-vessels, which is the secondary effect of cocaine, the mucous membrane increases in thickness, so that eventually the drug aggravates the evil it was meant to cure. Moreover, its seductive effect should

not be forgotten, nor the risk of starting the cocaine habit ignored, so that I would join with Mr. Lennox Browne in deprecating the employment of cocaine in chronic diseases of the throat and nose.—*Lancet, June* 15, 1889, *p.* 1183.

17.—THE TREATMENT OF SPASMODIC CROUP BY OPIUM.

By Arthur V. Meigs, M.D., Physician to Pennsylvania Hospital.

By the term spasmodic croup I have meant to designate all forms of the disease characterised by the absence of false membrane, whether supposed to be simply spasmodic, inflammatory, or catarrhal, and my desire is to raise the question of what constitutes proper treatment, for the subject is one upon which my own views are very definite. Though the disease only in the rarest instances endangers life, and from that standpoint is not of much consequence, yet it is so very common and causes so much suffering that by proper treatment can in most instances be so readily prevented or relieved, that it is well worthy of our careful attention and consideration. The method of treatment I have always pursued was for many years used by the late Dr. J. Forsyth Meigs, and is described in Meigs and Pepper on *Diseases of Children.*

It may be premised, in the first place, that in all severe cases the treatment must be begun by the administration of an emetic, and for this purpose, if it be necessary to have a prompt result, nothing will be found better than a teaspoonful of powdered alum mixed with a teaspoonful of syrup of ipecac. If emesis does not occur in ten, or at the outside fifteen, minutes, the dose may be repeated; the second, however, will not often be necessary. This is much better, if it seems desirable that an immediate result be attained, than any other of the emetics—ipecac alone, sulphate of zinc, or any of the preparations containing antimony. The latter I have always looked upon as unnecessary or even dangerous on account of the severity of their effects, though I confess that my personal experience with them has been of the most limited description. Alum and ipecac act with great promptness, have the most marked effect in relaxing the laryngeal spasm, and, contrary to what is very commonly said of their combined use, produce very little physical exhaustion and relaxation afterward.

If there be no dyspnœa, emetics seem to me entirely unnecessary nor do I give one if there be merely a hoarse voice and slightly, noisy respiration without real difficulty of breathing. It is only when there is decided obstruction of respiration and retraction of the base of the chest and supra-sternal fossa that emesis is to be at once induced. If the symptoms are not sufficiently urgent to make the administration of an emetic necessary, I order a dose of laudanum and ipecac, and at the same time give directions for a second dose, if the first did not in the course of an hour produce a marked

calming effect. By the judicious use of an opiate with ipecac, if the case be not so severe as to demand the immediate and somewhat more violent action of an emetic, in my experience the spasm of croup can be better combated than by any other means I have ever tried, and when once a physician and judicious mother have combinedly learned to manage spasmodic croup in this way the disease, except when it occurs in its most violent forms, loses almost all its terrors in a household. What is to be aimed at in croup is to give such an amount of laudanum as will produce a moderate but decided soporific effect without narcosis, and ipecac to relax spasm but not nauseate, and especially not to induce emesis. In administering laudanum to any child that has never previously taken it, no one should ever do otherwise than begin with a minimum dose, and this too at the risk of failing to thoroughly produce an effect, because the event will prove the dose to have been too small for the particular individual. For a child two years old, the initial dose should not be more than two drops of laudanum with ten of ipecac syrup; this to be repeated after an hour, or any time later if necessary. By waiting an hour, a second dose can always, in my experience, be given with entire safety, for if the first has produced no decided effect in that length of time, the second will not produce too much. For an infant of two to six months the first dose, to keep properly within the line of safety, should be half a drop with five or six of ipecac syrup, this to be repeated in an hour if the first be insufficient. In older children the dose must be proportionally larger, and the precise amount to be given is very much a matter of individual judgment, for it is difficult to formulate a precise rule which can be held to rigidly at the moment of emergency. It is a good plan often, when the case is a severe one, and an emetic has been judged necessary, after its action to wait half an hour, and then give one or two doses of laudanum without ipecac, to induce sleep and relax spasm. This seems often to prevent the recurrence of the attack toward morning, which is likely to take place if the emetic alone be relied upon.

Knowing that the trouble is likely to return, the child should be kept in bed the following day, and given every two hours minute doses of paregoric and ipecac, to which nitre may be added if there be fever The doses should be so small as to be very gently relaxing, but the amount of opiate too little to induce any sleepiness, and that of ipecac to take away appetite, much less produce any nausea. This result will be most nearly attained in children between two and five years of age by the use of from five to ten drops of paregoric, and about five of ipecac syrup. As much as ten drops of the ipecac, and it is an amount I have very commonly seen given, is sufficient, when administered every two hours, to nauseate many children, and then the remedy becomes worse than the very disease itself, for nothing is so depressing to the general strength and vitality,

and natural powers of resistance to disease, as long-continued nausea. The child having, as already recommended, been kept in bed during the day, when the second night comes laudanum and ipecac should again be given at bedtime, with directions for a second dose if it seems necessary. During the second day also, the child should almost always be kept in bed, and the minute doses of paregoric and ipecac continued every two hours, and the laudanum with ipecac at bedtime again administered. After the third night, unless the case be one of unusual severity, the cough will become loose, and when this is the case there is no longer any likelihood of a return of spasm. In my own experience it has seldom happened, and then only in cases of great severity, that I have found it necessary to administer an emetic after the first night, though I am sure that if cases be left without treatment, the spasmodic symptoms are apt to be more violent the second or third nights than they were the first.

The treatment of the disease after the spasmodic symptoms have passed off it is not necessary for me here to discuss, for it must be that of coryza, or bronchitis, or both, according as the inflammatory process which had its origin in the larynx travels upward or downward, or in both directions, for it is sufficiently well known that an attack of spasmodic croup is almost always followed by, or perhaps more properly is, the first symptom of a cold of some sort.—*Medical News, March* 23, 1889, *p.* 311.

18.—CAUSAL DIAGNOSIS OF LARYNGEAL PERICHONDRITIS.

By F. De Havilland Hall, M.D., F.R.C.P., Physician in charge of the Throat Department, Westminster Hospital.

[In the course of a discussion on perichondritis of the larynx, at the Annual Meeting of the British Medical Association, 1889, Dr. De Havilland Hall, discussing the question "*Are there any characteristics by which the Laryngeal Perichondritis of Tuberculosis of Syphilis, and of Cancer, can be differentiated?*" said:]

From the difficulty in making the diagnosis of primary perichondritis, it will naturally follow that the further question of distinguishing between the causes of secondary perichondritis, is often one to baffle the keenest diagnostician. First of all, as regards tubercular perichondritis. In most cases the diagnosis can be made with ease. In phthisical cases the arytenoid cartilages are particularly liable to be affected. A very common site of tubercular ulcers is the interarytenoid fold, or they may be seen on the anterior aspect of the arytenoid cartilages. These ulcers are often very small in circumference, but, penetrating deeply, they lay bare the cartilage. The general pallor of the pharynx and larynx, and the puffy swelling of the epiglottis and arytenoid cartilages will often assist in making the diagnosis, and if tubercle bacilli are found in the secretion removed from the surface of the ulcer by the

laryngeal brush, it hardly requires the corroboration of apical mischief in the lungs to clinch the diagnosis.

Schnitzler records the case of a man, aged 30, who stated that he had never had syphilis, and who suffered for four years from ulcers in the larynx and perichondritis of the arytenoid cartilage and catarrh of the apex of the lung. An inunction cure had no result, but iodide of potassium in 45, 60, 75 grains daily gradually dissipated all the threatening symptoms, and the ulcer on the epiglottis and the perichondritis of the arytenoid cartilages healed completely. This case emphasises the importance of treatment from a diagnostic point of view. In fact I would not like to say that any perichondritis was certainly not of syphilitic origin until I had tried the effects of full doses of iodide of potassium. It is important to bear in mind that tubercular and syphilitic laryngeal mischief may coexist, or a case, which was originally of syphilitic origin, may become tubercular, the syphilitic ulcer forming a suitable nidus for the development of the tubercle bacillus. In perichondritis of syphilitic origin the cartilage most frequently affected is the arytenoid, next the cricoid, and, lastly, the thyroid. Syphilitic perichondritis is characterised by the absence of pain, and the fact that in many cases the mischief has extended from, or is complicated with, ulceration of the pharynx, and there is possibly the history of past syphilitic manifestations.

But it is in the diagnosis of perichondritis arising from cancer that the greatest difficulties arise and the most painful mistakes are made. Just before the commencement of the illness of the German Crown Prince, I had under my care a case which illustrates the insidious nature of the malady and the difficulties which arise in attempting to make a diagnosis at an early stage of the disease. The patient, who had been a colonel in the army, was a man of magnificent physique. When first seen he gave a history of twenty years' slight hoarseness, and the laryngoscopic appearances were those of a moderate amount of chronic laryngitis. A year later he again came under observation, and there were unmistakable signs, on laryngoscopic examination, of an abscess on the right side of the larynx. This burst spontaneously, and under the influence of iodide of potassium there was marked improvement, and swallowing, which previously had been much impeded, was now accomplished without difficulty. The good general condition of the patient and the considerable improvement, both objectively and subjectively, which had followed the administration of iodide of potassium led me to hope that, in spite of the absence of any history of syphilis, the patient was suffering from specific perichondritis. Unfortunately, this was not the case. Three months after my last interview the patient died at the seaside quite suddenly, from obstruction to the breathing. He had refused to have tracheotomy performed, though warned of the possibility of the onset of dyspnœa. The post-

mortem examination showed the larynx was infiltrated with cancer. On looking back to this case in the light of more recent experience, I do not see how the mistake in the diagnosis could have been avoided. Schnitzler has put on record a very instructive case which illustrates the difficulties which sometimes attend the diagnosis of perichondritis of malignant origin from that due to tuberculosis. Laryngoscopic examination revealed the presence of considerable swelling of the epiglottis and extensive swelling of both ventricular bands and the arytenoid cartilages, the right one being almost immovable. The vocal cords could not be seen, except the posterior end of the left one, which appeared to be moderately congested. The subglottic region was invisible owing to the great narrowing of the rima glottidis. External examination of the neck showed that the thyroid and cricoid cartilages were much thickened, and that the surrounding tissue was infiltrated. The cervical glands formed a tumour as large as a man's fist, which at one spot showed distinct fluctuation on the left side. Examination of the lungs revealed the presence of catarrh of the apex, but the patient had never suffered from hæmoptysis, and there was no tuberculosis in his family. The sputum proved to be free from tubercle bacilli after repeated examinations. The patient had never suffered from syphilis.

Taking all these facts into account, what diagnosis could be come to? Tuberculosis was first thought of. The infiltration of the epiglottis and the swelling of the ary-epiglottic folds, which was characteristic of tuberculosis, was suggestive of diffuse tuberculous infiltration of the larynx. The fact, however, that the inter-arytenoid mucous membrane, which as a rule is chiefly affected in tuberculosis, was only slightly swollen, and that no ulceration could be detected anywhere, led Professor Schnitzler to diagnose cancer. The enlarged cervical glands and the presence of fluctuation over a circumscribed area were, however, more like scrofula than cancer. The examination of the pus from the suppurating gland showed an absence of bacilli, and an excised portion of the right epiglottic fold when examined microscopically gave a negative result. Later on there was effusion into the left pleural cavity, together with hemorrhage from the larynx and horrible fœtor of the breath. The post-mortem examination confirmed the accuracy of Professor Schnitzler's diagnosis. There are two symptoms in this case which, in my opinion, are eminently suggestive of cancerous perichondritis; they are (1) the thickened and infiltrated condition of thyroid and cricoid cartilages and surrounding tissues, and (2) the occurrence of hemorrhage from the larynx. In cancer of the larynx suppurative perichondritis may occur without a breach of the mucous membrane, so that the pus infiltrates the tissues and may come to the surface externally; whereas, in the two other common forms of perichon-

dritis, the syphilitic and the tubercular, the necrosis of the cartilages is almost invariably due to the extension of ulceration from the surface of the mucous membrane, so that there is not the same tendency for pus to infiltrate the tissues, as it is discharged gradually through the sinuses formed by the ulceration. The occurrence of hemorrhage from the larynx I regard as presumptive evidence of malignant disease. I have never met with it in the perichondritis of tuberculosis or of syphilis, whereas it is not at all uncommon in the cancerous form. In some cases it may be possible to remove portions of the growth from the interior of the larynx, and if these show a cancerous structure the nature of the disease is clear, but a merely negative result, as in the case of the late Emperor Frederick, is useless from a diagnostic point of view. —*British Med. Journal, Sept.* 14, 1889, *p.* 589.

19.—FOLLICULAR TONSILLITIS, AND ITS RELATIONS TO RHEUMATISM.

By C. W. Haig-Brown, M.D., M.B. and C.S., Medical Officer, Charterhouse School, Godalming, Surrey.

If tonsillitis is classified by its pathology, according to whether the parts of the organ mainly affected be its follicular or its interstitial elements, there is the simple and natural division into two varieties, follicular and interstitial; and I shall use the word tonsillitis throughout the sequel as applying to follicular tonsillitis alone, and not to the interstitial form.

It has been my observation that tonsillitis is especially apt to occur under two quite opposite conditions of climate. One of these is when the air is saturated with moisture for several days in succession, such as is not uncommonly the case in late December and early January, while in the midst of an anticyclone the wind blows gently from the north-east and the trees drip with the damp of a thick fog. The other is when there have been several successive hot and dry days also in the course of an anticyclone with north-easterly breeze, but with the humidity of the air about 80, and of course no fog. These are the two conditions of winter and summer atmosphere respectively which most favour the development of cases of tonsillitis, and curiously also of cases of rheumatism.

But another causative relation which the two diseases appear to have in common lies in each being liable to arise under septic influences. It is a matter of wide and, I am sure, correct belief that tonsillitis frequently occurs in connection with drain poisoning, but it is not so universally recognised as it should be that rheumatism may appear under the same condition. If we admit that septic influences of all kinds are liable to engender arthritis, as we see in scarlatina, syphilis, gonorrhœa, puerperal fever, and pyæmia, we ought not to feel surprise at the appearance of arthritis under the

influence of poison inhaled from cesspools and ill-ventilated drains. Three years ago tonsillitis was a very common disease among the inmates of a certain large institution, and so, comparatively speaking, was rheumatism. The throat cases made up 21 per cent. of the total sick list for the year, while the rheumatic added 4 per cent. It had been frequently represented to those who controlled parts of this institution that such conditions were dependent upon the improper drainage of these parts; but, as you may remember, it required a more powerful though less agreeable method of persuasion to convince these gentlemen of the truth of the representation; and then, acting upon the better judgment thus brought about, they set their houses in order. Immediately the cases of tonsillitis began to diminish in number, and so did the cases of rheumatism. The records of that establishment for the past twelve months show tonsillitis cases at 5 per cent. and rheumatism at 1 per cent. of the total cases of sickness, as against 21 per cent. and 4 per cent. in 1886.

I once took the opportunity to inquire into the history of 119 cases of tonsillitis which occurred in educated people concerning rheumatism, and from 76 of them I obtained positive evidence. In 38 there had been previously attacks of rheumatism of varying intensity, in 28 rheumatoid pains accompanied the attack of tonsillitis, and the remaining 10 had never themselves had rheumatic arthritis, but one or other of their parents had.

On looking for further clinical features of resemblance, we are at once struck by the peculiar and persistent aptitude of both disorders to recur, and by their very frequent alternations. Nor can we pass without comment the sour-smelling perspirations and the pains in the limbs and back which, quite apart from inflammation of the joints, accompany the febrile period of both diseases; and when, reflecting for a moment on the nature of these, we admit them to be due to inflammations of the fibrous elements of the inter-muscular fasciæ and the periosteum, and take into consideration the fact, doubted by none, that in rheumatism the endocardium and pericardium are liable to become inflamed; and when we further couple with this the fact that cardiac murmurs of more than transitory importance are sometimes developed in the course of tonsillitis, while coinciding with their development there is an increase of fever, and following their establishment hypertrophy of the usual parts of the myocardium, with, in some cases, later progressive failure of this compensation, it must be allowed that tonsillitis and rheumatism at any rate present certain complications in common.

A few years ago Dr. Cheadle pointed out the frequent absence of defined cause, especially in young people, for many cases of valvular disease of the heart, and I myself remarked at the time upon the equal frequency with which many cases of tonsillitis, particularly in children, were diagnosed as "febricula" for want of an examination of the throat, whereby the cause of illness would have been

demonstrated ; and I was delighted to find my observations on this matter in entire accordance with those of Professor William Osler, of Philadelphia, who wrote me : " I have believed and taught for some time that endocarditis might accompany follicular tonsillitis." I have, moreover, seen two cases of tonsillitis, each complicated with endocarditis, associated with the hyperpyrexia sometimes met with in rheumatic fever. It differed from rheumatic hyperpyrexia in that neither case terminated fatally, but agreed with it in that both the hearts were permanently damaged. And while upon the subject of similarity of complications, I must not omit to mention the case of a young woman with mitral stenosis and regurgitation, whom I sometimes see on account of temporary failure of compensation, who developed her first attack of tonsillitis during her first lactation, and has since had several alternating attacks of follicular tonsillitis and erythema nodosum without ever having had a rheumatic pain or a swollen joint. It is hardly necessary to emphasise the point that none of the cases of sore throat just quoted were cases of scarlatina, but the mention of this affection serves to carry our thoughts to chorea, and here we find tonsillitis and rheumatism dissimilar. Neither chorea nor iritis seem to follow upon tonsillitis unless rheumatic fever intervenes, and I have never seen tonsillitis directly followed by chorea unless the tonsillitis was scarlatinal, nor have I known iritis in any way associated with sore throat unless the latter were scarlatinal or syphilitic.

And I have not found that the treatment usually employed for rheumatism is of especial value in tonsillitis. I have frequently seen salicylates given on the second day of tonsillitis, and a rapid fall of temperature occur on the third day, but I have quite as often seen the temperature fall on the third day without the administration of any drugs at all. I have also known salicylates given on the first day without any fall of temperature on the second, but with a sudden fall on the third, which, I repeat, happens in the natural unchecked course of the ailment. I admit that salicylates are the best drugs to employ, on account of their sedative properties; but I do not think that they influence the course of the disease. Tonsillitis is a sharp but short fever, and the usual critical fall of temperature on the third day has, I believe, had a great deal to do with the supposed success of certain remedies in its treatment.

And now, having named some of the points of symptom and complication on which a comparison of the two diseases may be based, I must affirm that, to my mind, the points of similarity considerably outweigh those of difference.

Having so far established a causative and clinical relationship between rheumatism and tonsillitis, we are led to one of certain conclusions: that rheumatism is a general disease which as frequently finds expression in the throat as in the fibrous and serous membranes; or that the inflamed tonsil is the receptacle for the

rheumatic poison and the medium for its conduction to the general circulation; or finally, that specific germs find their way into the body under circumstances favourable to their entry, and then evidence their presence in inflammation of the tonsils and the fibrous and fibro-serous membranes. And from analogy it is most likely that the last is the correct view. How many others of the family of specific fevers give the earliest indication of their presence in catarrh of some portion of the pharyngeal cavity! Think of scarlatina, small-pox, measles, rötheln, diphtheria, typhoid fever, and cholera; and bear in mind that one of these, scarlatina, is particularly prone to be followed by rheumatic manifestations. Now, with these facts before us, is it not very likely that what we at present call, by reason of its most evident objective symptom, "follicular tonsillitis," is itself a specific febrile disorder, hitherto unrecognised as such, maintained by the multiplication of peculiar germs in all parts of the body, but mainly, as in scarlatina, in the throat? With what other supposition are we to reconcile the sudden onset, the high fever with often slight local cause, the intense affection of the whole system, the critical fall of temperature irrespective of drugs, the frequently epidemic distribution of the disease, and its occasional spread by contagion? Neither do its precedence or its sequence by rheumatism, nor indeed the fact that it may occur without rheumatism, militate against the acceptance of this view, for the whole rheumatic train of symptoms may ensue upon any of the specific fevers—notably scarlatina and typhoid; while, on the other hand, either of these may occur without rheumatic sequelæ. Yet, again, it is impossible to avoid noticing that that specific fever which, however moderate its attack, always manifests itself in the throat (I refer to scarlatina), is the one most commonly followed by rheumatism, and that the febrile affection which we now call follicular tonsillitis, and which also never fails to attack the throat, has quite as commonly the self-same sequelæ.

Nevertheless tonsillitis bears a marked dissimilarity to many of the specific fevers inasmuch as one attack, instead of protecting against subsequent attacks, rather favours them. But in this very manner it resembles others of the group—for instance, diphtheria and malaria, the latter undoubtedly of specific origin and particularly apt to recur. Compare it further with another recurrent disease, catarrhal pneumonia, which Koch has shown to be always bacillary in its course and perhaps so in its origin. An attack of this disease at the right pulmonary apex is very often succeeded, some time after its subsidence, without any cheesy deposit by involvement of the subclavicular portion of the left lung, showing in this neither recrudescence nor secondary tuberculosis, but a distinct second attack by the same invasive process; and it is fair to argue from this that tonsillitis is not a mere catarrh, but is a

disease of the same nature due to the importation of specific germs, which, after being for a time dormant, multiply and indicate their presence by an explosion of development, their principal breeding ground being the tonsils and the lymphatic glands in connection with them, whence they are disseminated throughout the whole lymphatic and sanguineous circulations, while the denuded tonsils are fertile beds for the settling and development of many other bacteria and the dilated blood-vessels and lymphatics ready channels for their absorption.—*British Medical Journal, Sept.* 14, 1889, *p.* 582.

20.—THE OCCASIONAL TOPICAL USE OF SOLUTIONS OF NITRATE OF SILVER IN CHRONIC LARYNGITIS.

By Solomon Solis-Cohen, M.D., Philadelphia.

There are many subjects of greater scientific interest than the treatment of chronic laryngitis, yet very few of more practical importance to a large number of our patients.

The general questions of therapeutics, systemic and topical, of this affection have been so ably and thoroughly discussed in text-books and special articles by so many distinguished members of this body, that further elaboration now would be superfluous; and I simply desire to briefly communicate the results of personal experience during the last three or four years with a single agent, for the purpose of eliciting an expression of opinion from the competent observers present as to the real value of that agent—once over-used, now over-neglected.

There is no necessity to report cases in detail. They have not been due to nasal disease or obstruction, nor have they been those in which all topical treatment is unnecessary. Where indigestion, constitutional disease, or diathesis have been present, these have, of course, received due attention—hygienic, dietetic, and medicinal. It is thus simply of topical applications for the relief of local conditions that I speak. We have all encountered cases of chronic laryngitis, especially in singers, clergymen, lawyers, travelling salesmen, public speakers, &c., in which, after all discoverable sources of irritation, local or general, have been removed, and approved topical treatment suited to the individual case has been faithfully employed for a longer or shorter time, improvement would take place up to a certain point and there stop. Perhaps all visible evidence of disease, except an irregular pinkish striping of the vocal bands, would have disappeared; or perhaps there would be a uniform faint coloration, or may be only a loss of lustre; but something there would be that persisted and that prevented the patient from resuming with comfort full use of the voice in singing or speaking, or perhaps even in ordinary conversation for social or business purposes.

It is in such conditions as this, the last obstinate remnants of

the disease, that I have derived considerable satisfaction from the topical use by sponge, cotton-wad, or brush of weak solutions of silver nitrate, about ten grains to the ounce, applications being made every day for two or three days until some congestive reaction was produced; after that at longer intervals. In the course of treatment, too, in some cases, before reaching the last stage above described, I have found recovery apparently hastened by occasionally substituting stronger solutions of silver nitrate, forty to sixty grains to the ounce, for the iodised glycerin, tannin, tar, or other routine application. A visible increase in congestion immediately follows the use of the silver solution; but this passes off quickly, and at the next visit great improvement is usually manifested. These applications are made once in about two or three weeks, according to circumstances. By thus using solutions of silver nitrate, not as a routine measure, but occasionally in the course of other treatment, as a topical stimulant—the strength of the solution being in inverse ratio to the progress of the case toward recovery—I believe that in very many of the cases in which topical treatment is indicated recovery may be hastened; and in particular that the troublesome final stage may be managed with greater ease than by the use of any other agent with which I am acquainted.—*N.Y. Medical Journal, Sept.* 14, 1889, *p.* 287.

21.—ON THE TECHNIQUE FOR THE DETECTION OF THE BACILLUS TUBERCULOSIS.

By Frank Billings, M.D., Chicago Medical College.

The form of the bacillus tuberculosis is not characteristic, and it cannot, therefore, be differentiated from other pathogenic and non-pathogenic bacteria by its form alone. It is a very thin bacillus, about 2 to 5 micromillimetres in length (from one-quarter to one-half the diameter of a red blood-corpuscle). It is usually slightly bent. Like all protoplasmic cells it has an affinity for the aniline colours, and its reaction to these colours is characteristic when the aniline is combined with a mordant.

To elicit the characteristic reaction of the bacillus to the aniline colours it is necessary to proceed in a methodical manner. The instruments used, forceps, needles, &c., should be clean, sterilized by heating in a gas or other flame. The cover-glasses and slides should be cleansed in fine alcohol.

The material supposed to contain the bacilli should be collected in a clean vessel, and when collected should be protected from contamination by the air, &c. The material should be spread in a very thin layer upon a cover-glass, by means of a needle, or by placing a small amount upon one glass and then pressing another cover-glass upon the first, thus making a thin layer upon the two cover-glasses. The thin film is then allowed to dry upon the cover-

glass, or the drying may be hastened by warming it over a gas flame. Then, when dry, by passing the cover-glass quickly two or three times through the flame, the albumin usually present in the medium, fixes the film upon the glass.

The cover-glass is now ready for the aniline dye. One may use any colour, but aniline violet, methyl blue, or fuchsin is usually employed. Fuchsin is the most often used, because its bright red renders the bacilli more prominent to most observers; and, too, one may use with it, better than with the other colours, a contrast colour for the ground substance on the cover-glass. The colour used must be combined with a mordant, which so fixes it in the bacillus of tuberculosis as to render it very much less susceptible to the bleaching effects of the mineral acids, while it does not so affect other bacteria, with but two exceptions, which I shall mention later. There are several substances that may be used as a mordant; aniline water, carbolic acid, tannic acid, and others. Aniline water was first used, and is still by some, but the mordant now in common use, and the one used by Prof. Koch, is carbolic acid. It has the advantage over aniline water that a solution of it with the colour may be kept indefinitely, while the aniline water solution must be made each time it is used.

The following solution of Fuchsin (Ziehl and Neelson) is a satisfactory one in every way: Take of fuchsin, 1 part; acidi carbolici, 5 parts; alcoholis, 10 parts; aquæ distillatæ, 100 parts. Mix in the order given. A few drops of the staining fluid are placed upon the cover-glass, held in a forceps with the film upwards over a gas or alcohol lamp flame until the solution boils or gives off steam. It is then washed in water and is ready for the process of bleaching.

For bleaching, any of the mineral acids may be used. A 25 to 33 per centum watery solution of hydrochloric, nitric or sulphuric acid is used. Koch prefers nitric acid, his laboratory assistant uses sulphuric, while at Vienna hydrochloric is chiefly used. It is probably immaterial which acid is employed. The stained cover-glass is immersed in the acid solution for a moment, then in a 70 per cent. water solution of alcohol, and finally washed in water. The immersion in acid, alcohol and water, successively, being repeated until the colour is almost or quite bleached. This process leaves the bacillus tuberculosis coloured red, while the ground substance and all other bacteria, with the two exceptions mentioned, are bleached. The mordant used enables the bacilli of tuberculosis to retain the colour. Too long immersion in the acid will also overcome the action of the mordant and render the examination *nil*. The cover-glass should be finally thoroughly washed in water to remove all acid, otherwise the slight amount of acid remaining will gradually fade the colour and in a few months the preparation will become worthless.

The cover-glass may now be mounted on a slide in water or

glycerine, or, after drying, in Canada balsam. One may, however, use a contrast colour—methyl blue for the ground work. It is only necessary to float the cover-glass, with the film downward, upon a 1 to 2 per cent. watery solution of the methyl blue for five minutes. The excess of blue colour is washed off with water, the cover-glass dried and mounted. The bacilli of tuberculosis will be seen stained red and other elements will be blue.

For tissue containing the bacilli it is necessary to immerse the sections for from 12 to 24 hours in the fuchsin solution. They are then decolourized by immersion in the acid solution, the alcohol, &c., until only a faint redness remains. The sections are then dehydrated in alcohol and cleared up in the oil of cloves. When mounted the bacilli are seen red, the tissue decolourized. The methyl blue may be used as a contrast colour, also, for sections. To easily detect the bacilli so prepared, one should have a microscope magnifying at least 450 diameters; however, the bacilli may be seen with a less powerful glass. An ordinary stand and substage will do for cover-glass preparations, but an Abbé substage condenser is a decided aid to the discovery of the bacilli in cover-glass preparations, and it is absolutely necessary in examining sections.

The discovery of the bacillus tuberculosis in the excretions, secretion or exudates examined is positively diagnostic of a tubercular disease. When it cannot be detected its absence is not of much diagnostic value, for it may be present in such small numbers as to render its detection difficult or impossible. When it is not found readily repeated examinations of material collected on different days must be made to make its absence of any worth as a negative sign. The bacillus is most easily detected in the sputa of tuberculosis pulmonum. It is most difficult to detect in the blood, even in cases of acute general tuberculosis. It is not usually difficult, as a rule, to detect it in the exudates into serous cavities; as in tubercular pleuritis, tubercular peritonitis, and tubercular synovitis. I have found the bacillus in the contents of a distended Fallopian tube. In tubercular disease of bone it is usually present in the cheesy infiltrate, but is difficult to find in the pus from sinuses in tubercular diseases of bone.

In the urine the bacillus is difficult to detect because of the bulk of urine and the decomposing effects of the urine. *Then the preputial and labial smegma bacillus* gives the same colour reaction as the tubercle bacillus, and its form is so nearly like the bacillus of tuberculosis that it cannot be differentiated from it with the microscope. The presence, therefore, of a bacillus in secretions from the genitals, giving the colour reaction and presenting the form of the bacillus tuberculosis is not here, as it is elsewhere, a positive sign of tuberculosis. In tubercular disease of the skin and mucous membranes the secretion therefrom sometimes contains the bacillus. Sections made from tissue taken from tubercular ulcers usually

illustrating not only the safety, but the advantage of the employment of morphine in the treatment of both uræmic convulsions and of other uræmic symptoms, some of which were present in my own cases. Dr. Loomis, writing on the employment of morphine when "premonitory symptoms of acute uræmia were present, as well as during the active manifestations of uræmic intoxication," says:— "So far as I am able to judge its administration has been uniformly followed by good results. In no instance am I aware that I have caused a fatal narcotism." Loomis certainly has shown the courage of his convictions, for he has given half a grain of morphine in a single dose to a patient in complete coma; and what is more remarkable and important, with relief to the condition. Scanzoni appears to have been the first to use morphine for uræmic convulsions, and Dr. Loomis mentions that he first gave morphine at the suggestion of Dr. Metcalf. Dr. Loomis and his followers have administered morphine in doses of from half a grain to one whole grain by hypodermic injection. Quite recently Mr. Alfred Grace has reported two cases of puerperal convulsions treated by morphine. In the first he gave a hypodermic injection of one grain at a single dose, and later another injection of nearly a grain. In the second case a single injection of a full grain of morphine was administered. Both cases made a perfect recovery. Purdy advises beginning with one-sixth to one-fourth of a grain, and writes, "The range of utility and safety of morphine in uræmia is strictly confined to the convulsive seizures. Its employment is improper in the state of pure coma or chronic uræmia unassociated with convulsions." The cases chronicled by Dr. Loomis and those I now bring forward directly negative this latter qualification. After the statements I have quoted, I shall hardly be accused of bold or venturesome efforts. My friend and colleague, Dr. Ralfe, in the Year-book of Treatment, 1889, mentions that in a patient of his suffering from granular kidney, with dropsy and ascites, the subcutaneous injection of one-sixth of a grain of morphia speedily relieved a persistent and distressing attack of renal dyspnœa which all other means had failed to control, and the relief was continued for some days following, without further recourse to the drug. But Loomis claims for morphine not only the relief of dangerous and distressing symptoms, but more decided benefit still. Writing of the hypodermic injection of morphine in such cases, he says: "The almost uniform effect of morphine so administered is (1) to arrest muscular spasm by counteracting the effects of the uræmic poison on the nerve centres; (2) to establish profuse diaphoresis; (3) to facilitate the action of cathartics and diuretics, more especially the diuretic action of digitalis."

Enough has, I hope, been said to justify the further trial of morphine in uræmia. I am not advocating its employment to the exclusion of other remedies of ascertained utility in the treatment

of Bright's disease and the uræmia arising therefrom. The evidence I have adduced shows that in spite of the asserted danger of opium and its alkaloid morphine in patients suffering from renal disease, it may in suitable cases be safely employed, and afford relief in the very distressing conditions we often witness in Bright's disease. I do not recommend its indiscriminate use; and in the light of the asserted susceptibility of patients with disease of the kidneys to the toxic effect of opium, it will be given with eyes open to its danger. It certainly afforded striking relief to the cases I have narrated; and though in these I can only claim a palliative and not a curative influence, they were cases which, from their nature and degree, no other result could be expected. In less advanced cases, where the kidneys are capable of recovery, better results may be hoped for, and have been obtained.—*Lancet, Aug.* 3, 10, *pp.* 209, 263.

33.—ON THE EMPLOYMENT OF COCAINE IN DIABETES.

By Thomas Oliver, M.D., M.R.C.P., Newcastle-on-Tyne.

In the course of diabetes it is no uncommon thing to find that glycosuria disappears on the development of an illness attended by febrile exacerbations. Towards the termination of diabetes, when phthisis is fully developed, we frequently notice that sugar disappears from the urine as the temperature becomes high. A high temperature, or perhaps more correctly speaking the condition which causes the temperature to become high, is thus seen to be followed by a disturbance of the glycogenic function of the liver. Is it possible that diabetes may be thus cured? Here is a case which lends weight to such a probability. A gentleman in this neighbourhood had been several months under treatment for diabetes. Contrary to medical advice, he went to the races one cold day, where he got chilled. He had shortly afterwards a rigor, which was followed by an atypical pneumonia attended by a considerable rise of temperature. The urine was now found to be quite free from sugar, and it remained free from sugar for more than a year, during which time the patient had quite regained, and felt himself in, his usual good health. From observation of these facts, it would appear as if the employment of medicine of the pyrogenic class might be followed by good results in the treatment of diabetes. Hence my reason for trying cocaine in the following case.

C. H——, aged forty-three, a cabinet maker, was admitted into the Newcastle Infirmary on March 15th, suffering from diabetes of five months' duration. His mother died in an asylum at the age of fifty; the rest of the family history is on the whole good. Five months previously he had noticed that he was passing too much urine, and that his thirst and appetite were excessive. Prior to this he had suffered much from

anxiety and worry in business. His skin is dry and shows here and there patches of psoriasis. Beyond puerile respiration at the apices nothing abnormal is detected in the lungs. His heart is healthy. In the abdomen nothing abnormal is noticed. He has, however, the gait of an ataxic. In walking he sways from side to side, is very unsteady, says he feels as if the floor were going up and down, feels giddy, and complains of numbness in the arms and hands. He does not fall, however, when his eyes are closed. Knee-jerks are present, but the response is slow and the amplitude large. Pupils are normal. He is the subject of delusions. When he awakes during the night he sees various objects with a peculiar colour, particularly men wearing black hats and yellow tassels. Temperature normal. Is passing thirteen to sixteen pints of urine daily, acid, specific gravity 1034; no albumen. The amount of sugar varies from 6000 to 7000 grains daily. He complains of a most obstinate constipation. His bowels are not relieved for six or seven days at a time, even though strong purgatives are employed aided by enemata. He is sleepy. At first I treated him by codeia, and, gradually increasing the dose, it was noticed that the urine fell to eight pints daily and the sugar to 4000 grains. Beyond this diminution in the amounts of urine and sugar eliminated daily, it was noticed that there was no improvement generally; the patient's symptoms remained the same. So I determined to try cocaine. This I gave in quarter-grain doses three times a day. Until now one of the most difficult symptoms to treat in his case was the obstinate constipation, but he had only taken the cocaine a few days when the constipation entirely ceased, and his bowels, which had hitherto refused to act to the strongest purgatives, now began to be moved once or twice daily. His nocturnal delusions also entirely disappeared. On ophthalmoscopic examination, Mr. Williamson, my colleague, reported the existence of a patch of old-standing choroiditis at the inner side of the disc of the left eye, and that the lens and disc in both eyes were normal. His temperature at this period ranged from 97° to 98°. When weighed on April 29th it was found that 6 lb. in weight which he had lost had been regained, and that his bowels continued to act well. In May the patient seemed to be progressing very satisfactorily. Urine varied from six to eight pints daily, and the amount of sugar from 1100 to 3000 grains. His delusions had not returned, he was sleeping and eating well, he had lost his vertigo and the swaying movement he felt when walking; also a painful sense of muscular fatigue of which he had previously complained. Instead of constipation the bowels were now moved sometimes twice and thrice daily. At this stage of his illness—that is, about ten days after this last record—the patient was passing from four to five pints of urine, and the daily average elimination of sugar was 1120 grains. The specific gravity

of the urine was a little over 1020. Thinking that the cocaine was acting too much upon the bowels, I stopped it. No sooner was the cocaine stopped than almost immediately the urine rose to seven and nine pints daily, and the average amount of sugar to 3900 grains. Very unfortunately, at this stage, when all seemed to have been going well with him, he injudiciously exposed himself in the garden and caught cold. He now began to cough; friction râles were detected at the base of the right lung in front, and also at the back, where in addition a few crepitant râles could be heard. Treatment by cocaine was not resumed, as the chest symptoms attracted most of our attention. Feet and hands became œdematous, and the amount of urine fell to two pints daily. Later on albumen was detected in the urine, but it was only present for a few days. Râles were now more generally heard over the chest, muco-crepitant at the left apex, and friction and crepitant râles over the whole lung. His course was now downward. His temperature ranged from 98° to 101°. Under the administration of small doses of digitalis the dropsy of the feet, legs, hands, and scrotum disappeared, although the abdomen was still found to contain a considerable quantity of fluid. He ultimately died from syncope.

At the post-mortem fluid was found in the pericardium and the abdomen. The substance of the heart was œdematous. The wall of the left ventricle was thickened. The valves were all healthy and competent. There was a cavity at the apex of the left lung. Smaller cavities and tubercular nodules were found scattered all through the lungs which were œdematous. The liver weighed 38 oz. Numerous white specks were noticed on its surface the size of a pin's head; they were hard, and evidently were miliary tubercles. The kidneys were pale and contained similar small bodies. The spleen appeared healthy; the mesenteric glands were cheesy. The dura mater was healthy; there was subarachnoid effusion of a milky white character. On section, the brain was found to be firm; it looked pale, but otherwise healthy. Each lateral ventricle contained one or two teaspoonfuls of serum. The vessels at the base in the fissure of Sylvius were healthy. Cerebellum healthy.

The points of interest in this case as the result of the administration of cocaine are—the total disappearance of a most obstinate constipation which refused to yield to the strongest purgatives; disappearance of a gait, not unlike that of ataxia; of delusions, and a sense of muscular fatigue; the return of a feeling of improved health and strength, with a gain in weight; a marked diminution in the amount of urine excreted; a very decided reduction in its specific gravity and a very noticeable fall in the daily elimination of sugar. Cocaine failed, however, to raise the temperature. —*Lancet, Oct.* 12, 1889, *p.* 735.

Surgery.

AMPUTATIONS, FRACTURES, DISLOCATIONS, AND DISEASES OF THE BONES, JOINTS, ETC.

34.—TREATMENT OF DISEASE OF THE SPINAL COLUMN BY CONTINUOUS HORIZONTAL EXTENSION.

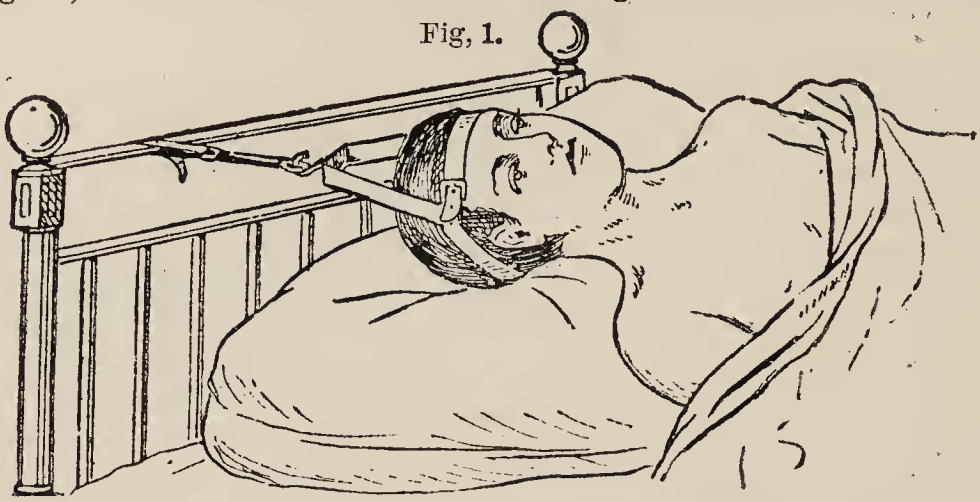
By William James Fleming, M.D., Surgeon to the Royal Infirmary, Glasgow.

Essentially the distortion in disease of the spinal column is a yielding to pressure—in the one case of the osseous tissue, in the other of the ligamentous. This in both is preceded by softening, generally due to local malnutrition. This seems to be the important fact to grasp in considering any plan of treatment. We must, in short, aim at removing the pressure and improving the nutrition. To remove the pressure is a mechanical problem, and to its solution I propose chiefly to direct attention; but it must be remembered throughout that the removal of the pressure is the first and most important step towards improving the nutrition, and the second indication to this end—rest— is also obtained at the same time, and by the same means. I was so impressed by these considerations, and the astonishing effects of constant elastic pressure upon living tissue, as shown by Professor Dittel of Vienna, that in 1883 I devised an inflating indiarubber collar for disease of the upper part of the spine, and in May, 1884, published in the *Glasgow Medical Journal* a description with cases. This apparatus has, I may say, been uniformly successful in suitable cases, but unfortunately its cost and liability to all the diseases of indiarubber, which generally make frequent repair and early renewal necessary, render it unsuitable for hospital work. Encouraged by the result of this application of the principle of continuous elastic extension of the diseased portion of the vertebræ, and of course recognising that in Sayre's method the benefit is from continuous but non-elastic support, I attempted, in November, 1886, to apply the same principle to a curve in the dorsal region by extending the whole body by weights dragging at the same time from the head and axilla and the feet. Such relief was afforded that I continued modifying the apparatus, which at first was very unwieldy and difficult to manage, and at this juncture received from Mr. Hilliard, of this city, the valuable suggestions of taking the downward extension from a broad pelvic band by a bandage fixed over the sacrum and of substituting an elastic cord for the weight attached to the head.

In the form in which it is now used, the apparatus consists of a

head-piece composed of two straps: one of leather, extending from a point just above and in front of the ear, round the back of the head below the occipital protuberance to a corresponding point on the other side; another of webbing, with a buckle, fixed to the ends of the posterior strap at such an angle as will permit it to pass straight across the brow just above the orbital prominences. Another strap extends loosely from about the point of junction of the other two to the corresponding point on the other side, and from the centre of this the extension is made. The exact position of this strap has to be varied to suit differently shaped heads. (Fig. 1.) It is well known that a bandage carried round the back

Fig. 1.



of the head just below the occipital protuberance, forwards just above the ears and across the forehead, will not slip up, and gives a fixed point from which traction in any upward direction may be made. The arrangement is simply a modification of this. It requires to be accurately fixed to each head, and when to be used in bed is best made for each patient; but if for suspension only, by introducing a buckle into the posterior strap it can be made to fit almost any head. The buckle is uncomfortable to lie upon. This head-piece is connected by an elastic cord to the top of the bed, so that it is level when the patient's head is upon a low pillow. The actual extension is made from the pelvis. Round this a broad towel is tightly pinned or sewn, and, in the middle line behind, has firmly attached to it the end of a piece of strong calico bandage. The other end of this is tied, at about the level of the feet, to the cord passing over the common extension pulley at the end of the bed, and a weight, proportioned to the body weight of the patient, put on. The bed is covered with a mackintosh sheet, freely dusted with powdered boracic acid, and the arrangement is complete. (Fig. 2.) It will be seen that, while the whole spinal column is thus acted upon by the extensile force, the arms and legs are quite free, and the patient can turn round and lie on the back, face, or either side at will, without for a moment relaxing the extension. The object of the smooth vulcanised rubber sheet is to reduce the

great friction between the body and the rough surface of the sheet, which it was found entailed a considerable increase of weight. Weights of from 4 lb. to 20 lb. have been employed, but about 6 lb. for a child and 12 lb. for an adult are usually best. It must be borne in mind that an elastic tension constantly exercised upon living tissue has an effect altogether disproportionate to what one would primarily expect from the amount of actual force employed; so that very slight but continuous traction is what we aim at. In some cases, recently, it has been found an advantage to bring the end of the T bandage loosely forward to be fixed by one or two legs over the pubes, the extension being taken from the centre of the bight so formed. By either of these arrangements the movement of every joint in the body, except the vertebral joints, are left free. The patient can turn over and over, lie on the back, face, or sides at pleasure, yet never relax for a moment the gentle extension of the spine. Massage, electricity, and gymnastic movements can be carried out, and talking and eating are in no way interfered with.

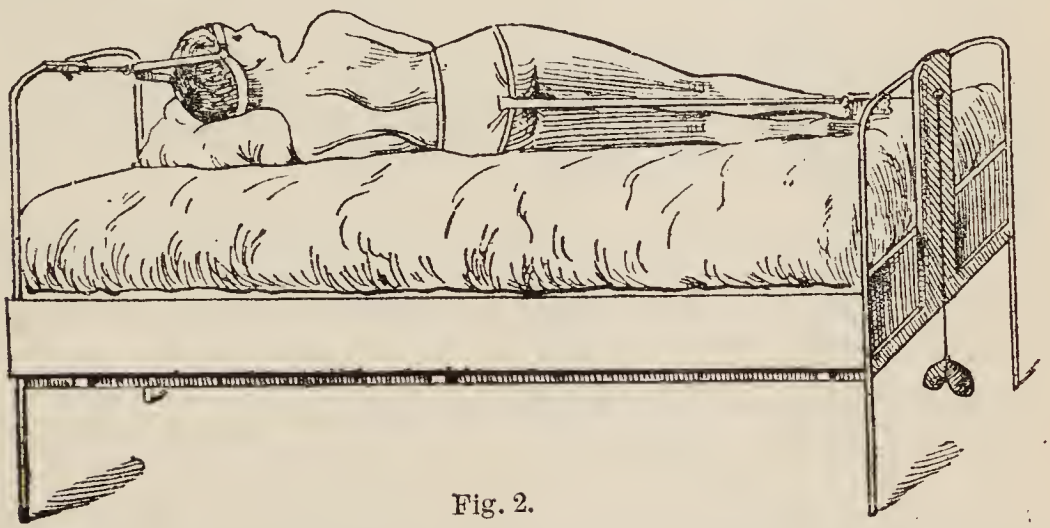


Fig. 2.

I wish here to say a few words as to the class of cases to which the plan is applicable. In the first place, I think I may say all true cases of Pott's disease in which ankylosis is not already firmly established are likely to benefit by the treatment. It is not so clear, nor do I affirm it to be the case, that all lateral or lateral rotating curves are suitably dealt with in this way; yet undoubtedly many are. My idea is that where there is tenderness and probably a slightly inflamed condition of the ligaments and cartilages, as we so often find, a short period of complete rest to the ligaments and freedom from pressure for the cartilages causes this irritable condition to pass, and gives the start to recuperative processes. In these cases it will probably be found best to keep the patient upon the stretch continuously for not longer than a fortnight, and then to let the apparatus be removed and the patient encouraged to take exercise of the proper kind during an increasingly

long period of the day, always sleeping in extension. This should be supplemented from the first by massage, electricity, and gymnastic exercises, many of which latter can be performed in the supine position. In cases of caries, actual or threatened, I advocate after extension; for the lower curves, a poroplastic jacket to be worn during the day and extension at night, for months, if not years. In cases where the disease is above the middle cervical vertebræ, I find Hilliard's artificial spine an admirable contrivance. Fig. 3 clearly shows its construction. It will be seen that he has adapted to it the head-piece which I have just described, so that it is scarcely observable.

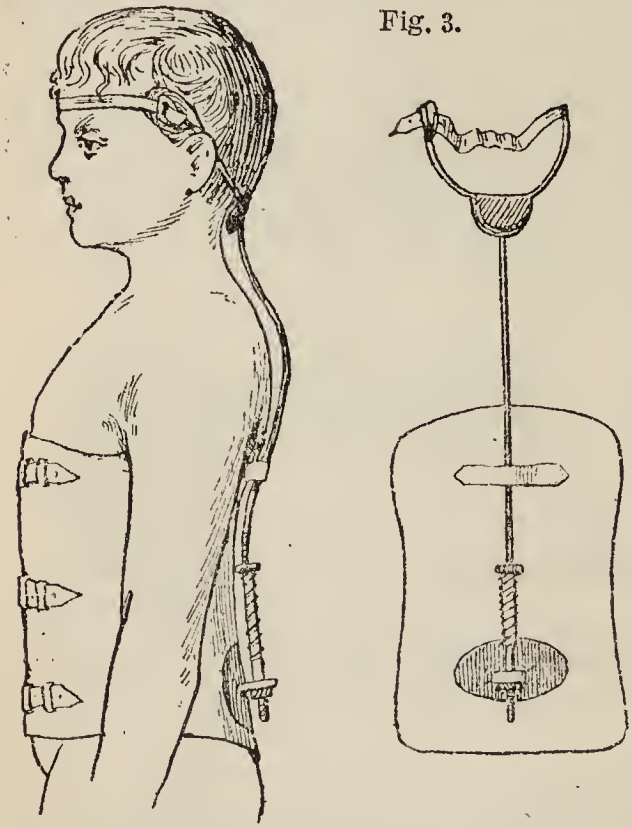


Fig. 3.

The cases which I have had under my care speak for themselves as to the merits of the treatment. To originality I lay no claim. Apparatus presenting each and all of the features of this one have been tried during hundreds of years, but I believe that it combines in itself all the good features of many others, and excels them all in simplicity of construction and management and in smallness of cost. We are at the present moment hearing much of the suspension treatment of locomotor ataxy, and I feel sure that the head-piece he described will be found specially suitable for the purpose. But, further, may I suggest to my medical friends that if extension by suspension for a few minutes does such good, is it not possible that continuous extension in these cases may prove better still? Out of forty cases which I have treated by this method, I will give short notes of a few which derived exceptional benefit.

[Only the headings of Dr. Fleming's illustrative cases are here given. *Case* 1.—Male æt. 32. Four years' history. Pott's disease with complete paraplegia. Rapid improvement, ending in complete recovery in 7 months. *Case* 2.—Female æt. 21. Acute atlanto-axial caries of 3 months' duration. Complete recovery. *Case* 3.—Female æt. 13. Well marked acute high cervical caries of 10 weeks' duration. Recovery. *Case* 4.—Female æt. 10. Prominence, tenderness, and a small superficial abscess in the lower dorsal region, following injury. Recovery. *Case* 5.—Female æt. 8. Marked

angular curvature in cervico-dorsal region, with a sinus in the neck. Great improvement.]

(The appliances described in this article have been patented by Messrs. W. B. Hilliard & Sons, 65, Renfield Street, Glasgow, from whom only they can be obtained.)—*Lancet, April* 27, 1889, *p.* 829.

35.—ON KOCHER'S METHOD OF REDUCING SUBCORACOID DISLOCATIONS OF THE HUMERUS.

By Charles A. Powers, M.D., Surgeon to the Out-patient Department, New York Hospital.

[Dr. Powers's illustrative cases, and an interesting account of the discussion between Kocher and Farabœuf, and some experiments made by himself upon the cadaver, relating to the importance of the coraco-humeral ligament in determining the variety of the dislocation, as well as numerous references to the writings of other surgeons upon Kocher's methods, are omitted for want of space.]

In the *Berliner Klinische Wochenschrift* for February, 1870, Professor Theodor Kocher, of Berne, first published the results of his cadaveric researches regarding the mechanism of this dislocation, and gave to the profession the most logical, scientific, and successful plan for its reduction which has yet been presented. His theory is that the end to be attained in attempts at reduction is to open the rent in the capsule and to relax its intact portions without employing force.

When the head of the bone passes from the glenoid cavity to beneath the coracoid process, it rends the capsule at its inner and lower part. The rent extends to the insertion of the tendon of the subscapularis, lacerating some of the fibres of that structure. Tension in the capsule is greatest at its upper part, between the tendon of the long head of the biceps and the upper border of the subscapularis. The posterior portion of the capsule and the tendons which reinforce it are preserved and stretched across the glenoid cavity. At the point of greatest tension the capsule is reinforced by the coraco-humeral ligament.

When, in a given case of subcoracoid luxation, the arm is adducted and strongly rotated out, the rent in the capsular ligament will be freely opened; but as the upper and lower parts of the capsule are yet tense the head of the bone remains firmly fixed against the anterior edge of the glenoid cavity. If, however, the arm is brought forward and upward across the chest, the upper part of the capsule relaxes; but the lower part, being yet tense, serves as a fixed point about which the head of the bone revolves and thus slips into its cavity.

Professor Kocher turned this anatomical knowledge to account in formulating the following procedure for the reduction of a humerus, the head of which rests beneath the coracoid process.

Fig. 1.—First Movement. The elbow is adducted to the body and drawn downward. (The arm and wrist should be firmly grasped, as shown in the figure.)

Fig. 3.—Third Movement. With the external rotation of the arm still maintained, the elbow is carried forward and upward on the chest.

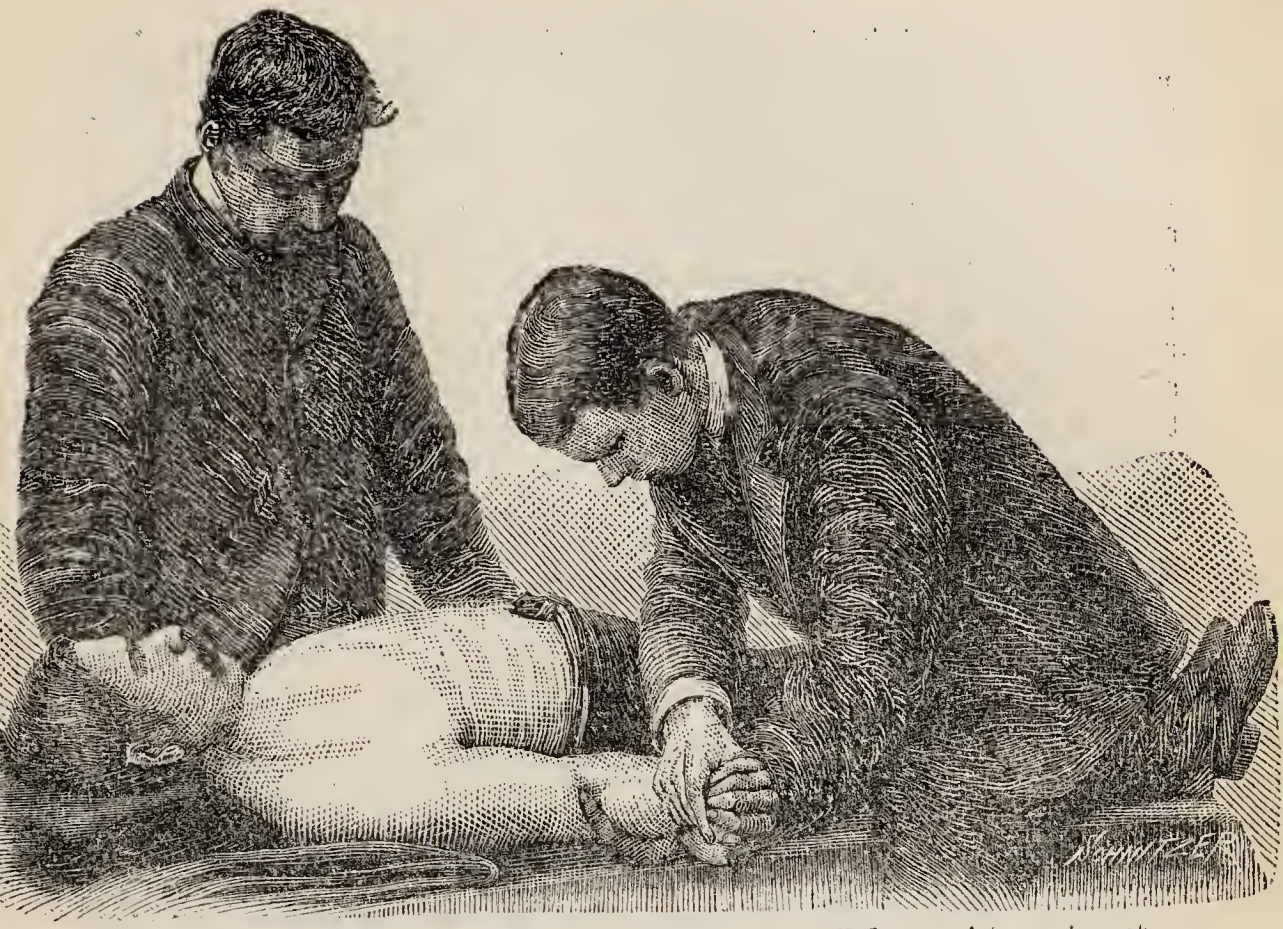


Fig. 2.—Second Movement. The arm is rotated out until firm resistance is met. Practically until the long axis of the forearm points directly outward.)

Fig. 4.—Fourth movement The hand is placed on the sound shoulder.

Suppose the right shoulder to be the seat of the injury. The patient is seated and the surgeon kneels beside him. With his left hand he grasps the arm of the patient just above the elbow. The patient's forearm being flexed to a right angle, the surgeon firmly seizes the wrist with his right hand. Then adducting the elbow to the body he utilises the lever furnished by the forearm and rotates the arm out until firm resistance is met (practically until the forearm makes an angle of ninety degrees with the antero-posterior plane of the body). Now, with the arm still strongly rotated out, he brings the elbow forward and upward in the sagittal plane across the chest, and finally rotates the arm in, and places the patient's hand on, his opposite shoulder.

This procedure I would amend by placing the patient squarely on his back, with both shoulders resting on a firm table, and as there is a great tendency for him to turn his body to the affected side during the external rotation of the arm, I think it well that the opposite shoulder be held down. This may be done by a by-stander. It is well, also, that downward traction be added to adduction of the elbow in the first movement.

The manipulation is shown in Figs. 1, 2, 3, and 4. I am indebted to Dr. C. C. Page, assistant at the Chambers Street Hospital, and to my pupil, Mr. T. B. Enders, for their kind assistance in the matter of the illustrations. (*See engravings pp.* 226, 227.)

[We are indebted to the courtesy of Dr. Powers for permission to reproduce the illustrations of this article. (Ed. *Retrospect.*)]

In a later article Professor Kocher lays additional stress on the importance of the coraco-humeral ligament, and, likening it to the ilio-femoral ligament of the hip-joint, says that the subcoracoid dislocation at the shoulder corresponds to the obdurator dislocation at the hip.

Its Employment at the Chambers Street Hospital, New York.—Early in 1883 a description of the method came under the notice of Dr. William T. Bull the Attending Surgeon to the Hospital, and under his direction its employment was begun. The first case was that of a man, seventy years of age, who presented himself at the hospital, March 3, 1883. His subcoracoid humerus was so quickly and easily replaced in its normal cavity that surprise and delight found place in the minds of all who observed the procedure. Since then the method has been used to the exclusion of all others. The results in the first six months were published by Dr. Charles A. Jersey, in the *New York Medical Journal* for September 23, 1883, in an article entitled, "Twenty-one Cases of Subcoracoid Dislocation of the Humerus reduced by Kocher's Method." In seventeen of the twenty-one cases the reduction was effected at the first attempt, in the other four the bone went back at the second, third, fourth, or fifth attempt, respectively. In none was an anæsthetic used.

During the five years ending with October 1, 1888, 173 recorded cases of recently dislocated humerus find place in the history books of the Chambers Street Hospital. Of these, 44 were subglenoid and 129 subcoracoid. The results of treatment in the subcoracoid cases are as follows:

Without ether, Kocher's manipulation, successful at 1st attempt.....	98
,, ,, ,, ,, 2nd attempt ...	6
,, ,, ,, ,, 3rd attempt ...	8
,, ,, ,, ,, 4th attempt ...	1
Failed without ether, with ether successful at first attempt	6
,, ,, traction at a right angle, successful.....	5
,, ,, foot in axilla, successful	1
,, ,, the head undergoing extreme external rotation slips into axilla and is then reduced as axillary	1
Kocher not tried, success by traction at a right angle	3
	129

We thus see that of the 126 cases in which the procedure was resorted to it was successful in 98 cases, or 77 per cent., at the first attempt, and that without the aid of an anæsthetic. Let us, however, make due allowance for the fact that these dislocations were reduced by some twenty-five different gentlemen, each of whom numbered in this list his "first case," on which, perhaps, he failed at first attempt. Let us assume, moreover, that the list is not entirely free from diagnostic errors, and that more than one case which is classed as subcoracoid, was, in reality, an axillary luxation.

From the personal reduction of a not inconsiderable number of these cases, and the observation of many more, I am fully prepared to share the opinion that "in a recent simple case, the manipulation should prove successful at the first attempt, without anæsthesia."—*New York Medical Record, March* 30, 1889, *p.* 337.

36.—A NEW METHOD OF EXCISING THE WRIST JOINT.

By Edward Thompson, F.R.C.S.I., Surgeon Tyrone Co. Infirmary.

Excision of the wrist-joint, even in these days of antiseptic surgery, is an operation not much in favour with most surgeons. It is comparatively seldom practised, probably because, as a rule, the amount of disease which would justify such a very serious proceeding is too extensive to render success probable, while in slighter cases efforts are made to remove limited diseased portions of bone, a proceeding which I have often seen attended with very unsatisfactory results. The operation as perfected by Sir Joseph Lister is, notwithstanding all that can be said in its favour, clumsy and difficult of performance, and includes removal of the whole carpus, resection of the ends of the metacarpal bones, as well as of the

ulna and radius. The following case, which has been under treatment in the Tyrone Infirmary, illustrates the change which I propose in the method of performing this operation.

Mrs. I., a strong, healthy, middle-aged woman, living near Dungannon, in the county Tyrone, was admitted into the Tyrone County Hospital, about two years ago, suffering from caries of some of the carpal bodies of the left hand. The diseased and loosened portions of bone were removed by careful gouging, and although there was some improvement, the woman went home very little better than when I first saw her. About five months ago she returned to the Infirmary in a very much worse state of health. She had lost greatly in flesh and strength; the lower part of the forearm and hand were swelled and much inflamed. The slightest motion, even of the fingers, caused intense pain. There were numerous sinuses both on the back and front of the hand and forearm, all of which communicated readily with carious bone. There was also a constant discharge of thin unhealthy pus. The patient was most anxious to have her forearm amputated, as her sufferings were intense. I determined, however, to try and save the hand by removing the diseased bone, by a method quite different from the proceeding generally adopted in excision of the wrist. On the back of the hand, and within about half an inch of its ulnar border there was a large shallow ulcer about the size of half-a-crown. I selected the outer edge of this sore as the site of the incision, which ran between the tendons of the extensor communis and minimi digiti, and was about four inches in length. The edges of the wound were kept apart by retractors, the joint freely opened into, and a full and accurate view obtained of its inner aspect. The disease seemed to be confined to the first carpal row of bones, and to the lower extremity of both the radius and ulna.

A gouge was first introduced into the joint, and the semilunar bone gouged completely away; then each of the neighbouring bones was firmly caught by a strong forceps, slowly twisted from its connections and removed. The diseased ends of the radius and ulna were removed by gouging. Subsequently, as there was no difficulty in shoving the extremity of the radius and ulna through the wound, I thought it better to saw both bones straight across immediately above the seat of disease. In order to allow free drainage, a small incision was made on each side of the joint as close as possible to the level of the floor of the joint, and a drainage tube inserted. The wound was stuffed firmly with iodoform gauze, and dressed antiseptically. A straight splint was placed under the forearm and hand, the palm being supported and raised on a roller bandage instead of a piece of cork as usually recommended. The case made an uninterrupted and speedy recovery, and the patient has now a good useful hand instead of an unsatisfactory mechanical contrivance.

This case seems to me of some importance, because it well illustrate the success of a plan of treatment which I believe has not been hitherto recommended. The method employed differs widely from the usual operation of excising the wrist-joint. It is easy of performance, free from danger, does not tear or injure any of the tendons, vessels, nerves, or deeper structures. It is quite bloodless, and does not require removal of any portion of bone which is sound and healthy. The opening on each side of the joint I consider essential, as free exit is thus given to any discharge that might possibly collect in the cavity left after removal of the diseased bones. Arthrectomy of joints, with removal of diseased masses of bone by gouging and the chisel, has a large field before it. Quite recently in the Tyrone Infirmary I opened freely into the knee-joint, and gouged away nearly the whole of the head of the tibia, draining the joint freely by two large drainage-tubes inserted above and below, and crossing in the joint. The case was a most unfavourable one in every respect, yet recovery was complete, the boy being out of bed in a few weeks, his limb being well supported in a plaster-of-paris case, which was put on immediately after the operation.—*British Medical Journal, July* 20, 1889, *p.* 127.

37.—ON THE PRINCIPLE AND RESULTS OF EXCISION IN TUBERCULAR DISEASE OF JOINTS.

By Howard Marsh, F.R.C.S., Hunterian Professor of Surgery and Pathology, Royal College of Surgeons, England.

The principle upon which the operation of excision rests is easily grasped. It is the cutting away of a part instead of the cure of the disease in which the part has become involved. It is like removing the eyeball or the testis instead of curing the disease by which these organs have been attacked. Of course this treatment may be the best that can be adopted. But it is, at all events, a method which should be reserved for cases in which it is believed that no means of less severity will suffice. It was undoubtedly a great advance in conservative surgery when, forty years ago, Sir Wm. Fergusson and his contemporaries introduced excision as a substitute for amputation in the treatment of diseases of the joints. But, although excision has thus had the important effect of largely diminishing the number of amputations for joint disease, it rests upon a principle which many confidently anticipate is only a link in the chain of progress.

The following are the grounds on which excision is recommended. Mr. Croft holds that when there is fluid in the joint antiseptic incision should be made, as if the surgeon intended to excise, and he should only desist on finding the articular structures in a condition from which they could rapidly recover and yield a movable joint. When pus is known to be present, even if the surgeon is uncertain

as to the condition of the joint, he should excise. If the surgeon is certain that necrosis has occurred, he should decidedly excise. Mr. Barker, in his lectures here last year, remarks: "It is most important to draw the clearest distinction between the liquefaction of caseation and true suppuration, not only as an abstract pathological axiom, but also for practical purposes. If a surgeon adopts the view that no operation is proper until suppuration has taken place in the tissues of a joint, he will always operate in very advanced disease. Tubercular affections are not associated with true suppuration, except in what may be called an advanced stage, so that if the surgeon waits till it is present much valuable time will have been irrevocably lost. But if the rule is made to operate as soon as there is evidence of the commencement of caseation, the conditions of operation are totally different. We shall be interfering in such a case relatively early, with all the consequent advantages. We must, therefore, in the future, watch for and endeavour to recognise early the doughiness of commencing caseation, rather than wait for the distinct formation of suppuration." And further on he says: "I venture to think it would be a wholesome rule that in cases where general tuberculosis does not contraindicate it, the infected tissues of a joint should be thoroughly removed as soon as it is suspected that caseation is advancing in it." Thus Mr. Croft would excise as soon as matter has formed, even without making himself certain as to the condition of the joint; while Mr. Barker would not wait for suppuration, or for a certainty that caseation has commenced, but he would operate as soon as he even suspected that this condition has set in. I think I am right in saying that Mr. Barker founds his views mainly on the nature of the tubercular process; for after remarking that, in the manner in which the disease spreads by continuous infection through the lymphatics and by entrance into veins, it offers a close parallel to the modes of generalisation of the so-called malignant neoplasms, he adds: "Indeed, there is much to justify our regarding tubercle in the light of a malignant growth, and our dealing with it accordingly." This appears to me to define his position in a single sentence, for every surgeon agrees that malignant disease should be freely removed as soon as its presence is detected. But, secondly, Mr. Barker dwells on the danger that, unless the local centre is removed, systemic infection may occur and general tuberculosis be developed. I propose to examine these arguments for early excision and the evidence on which they rest.

1. The view that there is much to justify our regarding tubercle in the light of a malignant disease, and our dealing with it accordingly, is, I think, derived from two considerations—(*a*) that tuberculosis is now known to be due to the presence of a parasitic organism, and (*b*) that the disease so often runs an inveterate and destructive course. The fact, however, that a parasitic growth is

present offers no indication that the disease is inveterate. Some parasitic micro-organisms are virulent and persistent in their action, while others are comparatively innocuous and short-lived. But it may be urged that a full warrant for regarding tubercle in the light of a malignant growth is found in the post-mortem room. I quite allow that some of the evidence here met with points in this direction. But such evidence must not be taken alone, for it is, in fact, indirect and inconclusive, and must be kept subordinate to the evidence derived from a careful clinical observation of a large number of instances of tuberculous disease, the great majority of which happily escape the post-mortem room. Such evidence I shall appeal to further on to show that tuberculosis is neither inveterate nor intractable, but that under favourable circumstances numerous examples of it result in sound repair. But the post-mortem room itself affords conclusive evidence that the tubercular process is often entirely arrested. This is the case in those numerous instances in which cicatrices are found in the lungs, the glands of the posterior mediastinum, and other parts. A very interesting paper confirmatory of these views was lately read before the Islington Medical Society by Dr. Sansom, who, after an analysis of twenty cases in which he was satisfied that phthisis had been arrested, expressed the opinion that the bacillus of tubercle has a tendency to die out like other germs when placed under unfavourable circumstances. And a writer in the *Lancet*, in reviewing this paper, reminds us of the following words of the late Dr. Hughes Bennett: "The careful dissections of morbid anatomists have recently shown that this arrestment (of the deposit of tubercle) really happens with extreme frequency"—as frequently, Dr. Bennett himself believed, as in one-third to one-half of all the individuals who die after the age of forty. As to the estimate of the inveterate nature of tuberculous disease which has been formed from clinical evidence, I may say at once that it urgently requires revision. Old statistics must be thrown aside, and present estimates must be derived from a critical examination of present results. In the instance before us it is necessary to take a comprehensive survey of these cases in their early as well as in their advanced and aggravated stage; to take into account those in which adequate treatment has been applied, as well as those which have been allowed to go on from bad to worse practically without treatment; and then to sum up and weigh the evidence afresh.

2. As to the view that early excision should be performed in order to avert the occurrence of systemic infection. I do not for a moment question the pathological doctrine of the production of general tuberculosis through the diffusion from a local source of tuberculous material along the lymphatics and the venous system. Such a result is, I believe, far from rare in children in whose bronchial glands tuberculous deposit occurs after whooping-cough or

prolonged bronchitis. Many children, under these circumstances, die of tubercular meningitis, and, on post-mortem examination, their internal organs are found loaded with recent tubercle. Nor do I question that systemic infection may take place when it is one of the joints that is the seat of the primary deposit. I am fully persuaded that it does. But the point to estimate is in what percentage of cases does systemic infection occur? My own conviction is that its frequency, in proportion to the total numbers of cases of local tuberculosis, has been greatly over-estimated. That infection from the joints is comparatively rare becomes evident when a sufficient number of cases are examined. For example, the cases treated in the Alexandra Hospital for Hip Disease between 1867 and 1879, and which were tabulated by the Clinical Society in 1880, show that in 260 suppurating cases in which no operation was performed there were 16 deaths (i.e., 6·15 per cent.) from tubercular meningitis—in other words, from acute general tuberculosis; and in 124 non-suppurating cases there had been 7 deaths (i.e., 5·6 per cent.); while a careful analysis of cases treated in this hospital since 1880 shows that the mortality from general tuberculosis has fallen to less than 5 per cent.

In forming an estimate of the frequency of general infection, we may also examine Mr. Croft's 45 cases, and Mr. Wright's 100 cases of hip disease treated by excision; for in a large proportion of these 145 cases the disease was well advanced before the operation was performed, and after the operation convalescence was in many retarded, so that the conditions favourable to general infection were present for a considerable period. In Mr. Croft's 45 cases, although the total mortality amounted to 35·5 per cent., the mortality from tubercular meningitis was only 4·4 per cent. While in Mr. Wright's series of 100 cases, although several patients died of tubercular disease, there was apparently only one case of acute general infection. From these figures it appears that, although the possibility of general infection from a tubercular joint is a distinct element of danger, the risk is so small that it cannot be regarded as affording any substantial support to the practice of early excision. For let us grant that in every hundred cases of tubercular joint disease going on to caseation there are five in which systemic infection will occur. This means that in every twenty children one will fall a victim, and that the remaining nineteen will escape; or, to state it otherwise, that the chances of escape in any given case are twenty to one in the patient's favour. The question therefore is, are we justified in resorting to excision in twenty cases in order to rescue the one case in which general infection would otherwise occur? Are we justified in excising the joint of a patient in order to avert the danger of general infection when the chances that he will escape are already twenty to one in his favour? I believe we are not. This seems to me to be

the proper view to take even if there was a certainty that the operation could be performed in such a way as to ensure (*a*) that no tubercle should be left behind, and (*b*) that there was no other deposit from which infection might still occur. But there is no guarantee on either of these points. In the first place, no one can tell that he has removed all the tubercle in the neighbourhood of the joint so that none remains as a source of infection, or be sure that the joint which he excises includes all the tubercle that is present in the body of the patient.

There is, however, a further and very important matter to be taken into consideration. This is the fact that the operation of excision may precipitate the very result it is intended to prevent. Mr. Barker points out that cases have occurred amounting, according to the figures which he quotes, to no less than 10 per cent. of the total number of deaths, in which, after the operation, "rapid general miliary tuberculosis supervened in such a way as to suggest strongly, if not to prove, that the surgical interference was the exciting cause of the generalisation of the disease"; and he adds, "I cannot help feeling, after careful study of large masses of statistics, that, if it were possible to analyse them more accurately, this percentage would be still higher." I have myself seen this result of operation in a few cases. I should, however, say, from my own experience, that this rapid generalisation after operative interference is much less common than Mr. Barker thinks it is; and I notice, in confirmation of this view, that in Mr. Croft's 45 cases of excision of the hip there was no instance of it, and in Mr. Wright's 100 cases of excision of the hip there was only a single example (No. 63); in this case the patient died of general tuberculosis and tubercular meningitis two months after the operation. Still, whether it is rare, as I believe, or common, as Mr. Barker holds, it is a danger which those who often resort to excision must be prepared to encounter.

Thus, after carefully weighing the evidence we at present possess respecting systemic infection from tubercular joints, I am led strongly to the conclusion that the number of cases in which it takes place is so limited that the prospect of its occurrence constitutes no valid reason for early excision. And this opinion is confirmed by the fact that there is no certainty that after excision there may not remain other tubercular centres from which infection may still be developed, or any certainty that the operation may not itself precipitate the result.

When we leave this part of the subject, and turning to clinical experience—which, after all, must be the ultimate test—ask what actual results have been obtained by early excision, we are met with a serious and, it may be, to some an unexpected difficulty. This consists in the small amount of evidence that has yet been prsduced. Mr. Barker, who has carried his advocacy of the operation

further than any other English surgeon, gives in his College Lectures no results whatever. He has an entirely different object in view. He defines his position by saying, "I am anxious, in the first place, to emphasise the need there is of attending to the reduction of the mortality from tubercular disease of joints before we have anything to say as to the preservation of their functions." Such an attitude as this will occasion no surprise when we remember that in his opinion "there is much to justify our regarding tubercle itself in the light of a malignant growth, and our dealing with it accordingly." Of course, if this is the correct view, tubercle must be treated as we treat carcinoma and sarcoma. A tuberculous joint must be excised, and the sooner the better, just as we excise a cancerous breast. We cannot arrest disease which presents the characters of malignancy; we can only remove the part upon which the disease has fastened itself. It is impossible, however, to shut one's eyes to the fact that this is an estimate of tuberculosis which the great majority of surgeons would not for a moment entertain. The estimate formed by Brodie, endorsed by Paget and Hilton, and accepted by a very large proportion of those who have studied the subject from a clinical point of view, is that, though often intractable and destructive in its later stages, tuberculosis, on a general survey, wears the aspect of merely an obstinate inflammatory process, the whole course and tendencies and results of which are widely divergent from those of malignant disease. And to such as hold these views excision presents itself, not as a strict necessity, as it is when we have to deal with cancer or sarcoma, but as a method which may possibly yield better results than can otherwise be obtained. But this is an open question, and one which can only be settled by ample and thoroughly sifted clinical evidence. Those who advocate excision must prove their case by the results which they produce. But since his lectures were given Mr. Barker has shown a case at the Medical and Chirurgical Society. In this instance, in regard to the operation itself, an excellent result had been obtained, for the wound healed by primary union, and the case was an excellent example of the progress which has lately been made in the treatment of wounds. When, however, the limb was examined at the meeting, it was found to be flexed and adducted, and there was considerable lameness. Thus, while the great and quite undeniable advantage of immediate repair of the wound had been secured, the condition of the limb in regard to the patient's power of walking was scarcely superior to the average results hitherto obtained, and with which many surgeons have been so much dissatisfied. On the same evening Mr. Bilton Pollard showed three examples of excision of the hip in which the same excellent result of primary union had been secured; but, as he was careful to point out, the cases were all recent, and the patients, who were still wearing splints, had made

no attempt to walk, so that what the future conditions and powers of the limb would be was as yet undecided.—*Lancet, July* 27.

38.—THE RESULTS OF THE TREATMENT OF HIP DISEASE WITHOUT EXCISION.

By Howard Marsh, F.R.C.S., Hunterian Professor R.C.S.

In the following summary I shall keep to the instance of the hip, because it is in reference to this joint that the operative treatment of tubercular disease has been most strongly advocated.

The treatment adopted, that of prolonged rest in the horizontal position combined with weight extension of the affected limb, is so simple and so well known that it is needless to describe it. But the method of dealing with suppuration claims more particular notice. All abscesses are opened as soon as they are detected. An incision from an inch to an inch and a half is made, matter is evacuated by gentle pressure, and a drainage tube just long enough to enter the cavity is used for two or three days. The dressing consists of carbolic gauze next the wound, and this is covered with alembroth wool. The dressing is changed according to the case. In many instances the wound closes in a fortnight or three weeks, sometimes even sooner. In others it becomes a sinus, slightly discharging for a month or six weeks, and then soundly healing. In others, again, suppuration remains free for several weeks or even longer, and further openings have to be made. But at length in a large majority of cases the wounds heal, and no further suppuration, except in a very few instances, takes place.

The following is an analysis, in which I had the valuable assistance of Mr. Bowlby, of cases treated at the Alexandra Hospital since 1880. One hundred and sixty patients (taken without selection) were written to, and 76 came for inspection. Of these 76 patients, 37, or a little less than half, were cases which had suppurated; and 39, or a little more than half, had not suppurated. Among the 37 there were 2 cases of double disease, and in the 39 there was 1 double case. Of the 37 suppuration cases (only 4 of which still had sinuses, and these were superficial), 24 (65 per cent.) were either perfect (1), excellent (6), or good (17), and 13 (35 per cent.) were moderate. When examined 7 had been discharged between one and two years, 9 between two and three years, 5 between three and four years, and 16 over four years. As to shortening, 3 had none, 17 had under an inch, 12 between one and two inches, and 3 had two inches and over. As to movement, 1 had perfect movement, 10 had free, 7 had slight (50 per cent.), and 18 (or 50 per cent.) were fixed (one not noted). As to power of walking, 2 walked perfectly, 22 walked well, and 13 walked indifferently. Of the 39 non-suppurating cases, 9 were perfect, 9 excellent, 12 good (77 per cent.), and 9 moderate (23 per cent.). The average

shortening was two-thirds of an inch. In 50 per cent. there was perfect or free movement, and 50 per cent. had slight movement, or were fixed; 12 walked perfectly, 20 walked well (84 per cent.), and 16 per cent. walked indifferently. I believe these cases fairly represent the results of non-operative treatment. The number of deaths from the disease, so far as we could learn, in 614 cases treated since 1880 was 35 (meningitis, 12; phthisis, 5; lardaceous disease, 9; following amputation, 3; exhaustion, 2; uncertain, 4). This mortality in 614 cases amounts to nearly 6 per cent.; the deaths from meningitis being a little under 2 per cent., and from phthisis less than 1 per cent. In 13 other instances in the total of 614 cases the patients were incurable. If these are added to the deaths, we have 52 cases—i.e., 8·4 per cent. in which the treatment is known to have failed. Comparing the results of excision with those of the treatment by long rest, we find that, while the mortality under the latter system is considerably less than 10 per cent., under the former, if we take Mr. Wright's cases, it is certainly not less than 20 per cent. Mr. Barker's and Mr. Pollard's cases, however, foreshadow a great reduction; and no doubt the immediate result of excision will show a great improvement on former experience. The main defect of excision will lie in the ultimate condition of the limb when it is compared with a limb in which no operation has been performed. It is now seen that, although in excision of the knee in children primary union may occur, especially when the operation is done early, the ultimate result is often very unsatisfactory. It will, I think, be the same with the hip. Early operation will be followed by rapid healing, but the limb will be weak and defective in usefulness; while, if adequate rest is secured at the same stage, a much more serviceable limb will be secured.—*Lancet, July* 27, 1889, *p.* 157.

39.—ON EXCISION AS COMPARED WITH AMPUTATION IN STRUMOUS DISEASE OF THE KNEE.

By John Duncan, M.A., LL.D., F.R.C.S.E., Senior Surgeon to the Edinburgh Royal Infirmary.

For cases of strumous arthritis which are unsuited for arthrectomy we have the choice between excision and amputation, and I must say that with extended experience I am inclined to increase the number of cases in which I recommend amputation. I suppose that in all cases amputation is comparatively safer, and the point to be determined is where the line should be drawn which indicates that the greater safety is counter-balanced by other advantages. It may plainly vary with variation, either in the element of risk or in the benefit derived by retention of the limb.

And first, it may safely be said that the danger attending either amputation or excision in a young and healthy person with un-

broken skin, is so small that the difference in risk between these operations may be treated as a *quantité négligeable*. In such, therefore, there can be no doubt of the propriety of preserving the limb, provided always that the disease can thus be fairly removed. I should not insist that it be absolutely and entirely removable, because, undoubtedly, the removal of the major part of the disease, and the relief of tension and the completeness of immobilization in many cases will allow the vitality of the texture to reassert itself and overcome the small portions of disease that remain. But I regard total removal as an important object for several reasons. These are, first, that a remanent focus of tubercular disease implies a long-continued threat of recurrence; second, that osseous ankylosis is more difficult to obtain when tubercular foci are present; and third, that dissemination of tubercle through the system is a result which does arise more frequently than is generally acknowledged when a large, raw surface, especially of bone, is exposed to tubercular infection.

It is easy to understand, and it is consistent with experience in operations for tuberculous disease, that the raw surface may become inoculated by diseased matter left behind, and the progress of the disease be more rapid than before.

If this danger of recurrence exist, it is plain that in such cases osseous ankylosis must be difficult to procure, and, indeed, there can be no other reason for the long delay in attaining it, and the occasional total failure which occurs in excision of the knee. A fracture through cancellated texture rarely fails to unite. The difficulty rather is to prevent an ankylosis of the neighbouring joint. Now, an excision is specially prepared for union; the surfaces are made as broad as possible, and usually special apparatus, as sutures of wire, are used to secure accurate apposition. But there can be no doubt that delayed union is common. In most of my excisions I find that mobility can be detected easily at the end of eight, ten, and twelve weeks in almost every case, and I do not find that union is more rapid in aseptic cases, which heal by first intention, than in those which have been done through septic sinuses, and which I have failed to render sweet. I think it not impossible, indeed, that the aseptic condition may diminish the rapidity and certainty of osseous union. I have been inclined to think that, so far as osseous union is concerned, operations for ununited fracture were more successful in old septic days than now. Much more dangerous they doubtless formerly were; but, if they did not kill, they succeeded, presumably from the hyperæmic results of inflammation. But this is not an adequate explanation of delay in excision. It is, if aseptic, precisely in the same condition as a simple fracture or a compound fracture kept aseptic. As in operations for ununited fracture, so, in excision for strumous disease, there must be some factor special to the condition which involves delay, and in the latter this lies,

doubtless, in the state of the texture brought about by the disease and which must be aggravated if foci of tubercle be left behind.

But again, after operations through strumous tissue there is a danger of dissemination of tubercle. This occurs in two ways. Much against my will I operated by excision in a case of tubercular disease of the knee-joint in a young man in whom the disease was so extensive that I strongly advised amputation. He would not submit, and died of miliary tubercle, chiefly in the lungs, a few weeks afterward. These cases have, I think, sometimes been regarded as septic poisonings, to which, in many respects, the symptoms bear a close analogy. They certainly occur more often than is generally supposed, and especially after operations in which large surfaces of bones are exposed, and in which perfect drainage from these surfaces is in the nature of things impossible.

The other mode of infection has, also, I think, failed to attract adequate attention. I scraped out the interior of the os calcis, as I thought very thoroughly, in a strumous abscess of the interior of that bone, and in doing so succeeded in rendering it aseptic. Four weeks thereafter, and before the wound had nearly healed, strumous arthritis of the wrist declared itself, and ultimately required excision. A boy of thirteen years was brought in with very extensive tuberculous ostitis of the left ulna, which had been going on for many months. He had no other lesion at the time. I removed a large exfoliation and scraped out the interior of the bone throughout nearly its entire length. Shortly after the operation, which was thoroughly successful locally, there appeared, one after the other, ostitis of the crest of the right ilium leading to carie-necrosis, necrosis of the right frontal bone, and antero-posterior curvature of the spine in the region of the second dorsal vertebra. I could multiply such cases considerably, and even mention instances in which apparently successive showers of diseased material have been deposited from the circulation. These will serve, however, to illustrate the proposition that dissemination occurs after operation, especially in osseous tubercle, not only in the way of miliary tuberculosis, but also in a more limited manner, when the tubercle introduced into the circulation is probably less abundant, and chooses, as it originally did, a suitable soil for its development.

These considerations, then, must form an important element in the determination of the nature of the operation to be attempted, as regards total removal of disease. They are most serious in connection with arthrectomy, less so in excision, least in amputation. Such accidents, again, will plainly be most liable to occur when the disease is extensive, and one or other mode of operating will be, therefore, performed according to the extent of the disease. But they will, also, be prone to happen in proportion to the size of the wound, and especially of raw osseous surface, and in this

respect the relative value of the operations varies in different cases, arthrectomy in some having the advantage. It is evident, therefore, no hard and fast rule is to be laid down, and that in every case many factors must be carefully weighed, one against another, before the surgeon can decide upon the appropriate operation.

I have already said that in a young and comparatively healthy person with unbroken skin, the risks of amputation and excision are so small, and differ so little that preservation of the limb should be the rule. This proposition implies that age, health, and septicity, and to them I would add the social status, are factors of no mean importance in determining our choice. We incline to amputation in preference to excision more and more; the older a patient is the more his constitutional vigour has been impaired, or is naturally defective, the greater the damage sustained from putrefactive conditions, and the less the pecuniary and hygienic circumstances are capable of affording the means of a long struggle with disease.—*American Journal of Medical Sciences, April* 1889, *p.* 369.

40.—ON ANCHYLOSIS OF THE KNEE-JOINT AS A REMEDY FOR THE "DANGLE LEG" DUE TO INFANTILE PALSY.

By Stephen Smith, M.D., New York.

There is a class of cases, not unfrequently met with, in which infantile paralysis has so far crippled the leg that it has become nearly, if not quite, useless. In many cases the leg is a mere "dangle limb," of no service whatever, locomotion being accomplished by the sound leg and a crutch. As the child grows older the leg becomes more and more of an encumbrance, and at length the question of remedying the deformity must be determined. Various kinds of apparatus have been devised and employed for enabling the limb to sustain the weight of the body in walking. But such measures have not been satisfactory. Apparatus proves cumbersome, is frequently out of repair, and is cast aside as worthless. Amputation has been a favourite remedy of some surgeons. The point of operation has been just below or at the knee-joint. The purpose of this selection of the place of operation is to secure a stump that will take a knee bearing in the artificial limb. Such limbs prove very serviceable, and are infinitely preferable to the crutch and "dangle leg." But still there is, and always will be, the disadvantage of an artificial limb, with its frequent derangements and occasional renewals.

Several years since, I treated such a case by anchylosing the knee-joint, placing the leg in a nearly straight position, and the result was in the highest degree satisfactory. I have repeated the operation several times since, and have never failed to secure a useful limb. In the belief that this method of relieving the disability, due to the general atrophy of the lower extremity, result-

ing from infantile paralysis, may be of use, the following case, the first in the series, is given in detail.

Case.—In 1878 a boy, ten years of age, came under my care, who had walked with a crutch since he was three years old. His special disability resulted from infantile paralysis affecting his left leg, which was flexed at the knee at about a right angle. Though the atrophy of the limb from the hip to the foot was extreme, the actual length was nearly that of the right leg, as ascertained by measurement, in its displaced position. The boy moved about very actively with a crutch, the affected limb dangling helplessly about the crutch. The parents were very anxious to have him relieved, and, while urgent to have amputation performed, readily consented to any other remedy that would improve his condition.

The first operation consisted in division of the tendons of the flexor muscles with a view of straightening the leg at the knee. If this could have been done apparatus might have been employed to fix the knee-joint so as to enable the patient to walk with a stiff knee. Or a joint in the apparatus might have enabled him to walk with flexion of the limb. But it was found impossible to straighten the leg after division of the tendons, owing to the tension of the remaining soft structures in the popliteal region.

After a few weeks' delay I decided to excise the joint, and all the usual antiseptic precautions of that period were taken. The joint was opened by dividing the patella. The joint-surfaces were perfectly healthy, and it was determined to remove from the extremity of the femur alone a sufficient extent to enable the limb to be straightened. Four thin sections were made before the tibia could be brought into proper position. In making these sections my purpose was to remove as little of the extremity of the femur as possible, in order that its future growth might not be affected. For the same reason the tibia was left entirely undisturbed, the cartilages and synovial membrane being left intact. It was believed that, though bony union might not occur, a firm fibrous anchylosis would follow. Two wire sutures were inserted to maintain the apposition of the femur and tibia; the two halves of the patella fell readily together, but were held in place with one suture. The wound healed without suppuration, and the patient was again moving about on crutches at the end of four weeks. There was at that time considerable movement at the knee. In eight weeks he began to bear some weight on the limb, and the consolidation was much more firm, but not complete. At the end of twelve weeks he was walking without a crutch or cane, but with some imperfection of gait, owing to the anchylosis, which was not yet so perfect but that some motion, though very slight, could be obtained. In four months the union, though fibrous, was so firm that motion could not be detected. He had now acquired

an elasticity in his movements which so concealed the imperfection of the leg due to stiffening of the knee, that it was difficult to detect his infirmity.

I have now operated in a number of cases, and always with results similar to those already detailed. The cases selected are those in which the atrophied limb is only slightly shorter than the well limb. Although the anchylosis has been firm when only bone has been excised, yet the union has been very slow. In three cases I have excised only the femur, but in the others I excised both bones. The latter united more promptly, though there was more shortening.—*Medical Record*, *April* 6, 1889, *p.* 367.

41.—ON PARTIAL RESECTION OF THE HEAD OF THE FIRST METATARSAL BONE FOR HALLUX VALGUS.

By George R. Fowler, M.D., Surgeon to St. Mary's Hospital, Brooklyn, New York.

The most important deformity of the toes, as well as the most common, is that which is generally known as bunion, or hallux valgus. It consists essentially of an external deviation of the normal line of the great toe, or abducted contracture of the latter. Instead of forming a continuation in a nearly direct line of the first metatarsal bone, the great toe forms more or less of an angle with the latter, and lies in a position to cross the other toes, passing either above or below these, generally the latter.

From the character and extent of the anatomical changes present, and the extreme sensitiveness developed in connection therewith, which almost absolutely prohibits the application of orthopedic appliances with the view of restoring the toe to its proper alignment, the treatment of this affection by measures other than operative is exceedingly unsatisfactory. Of the operative means at our command may be mentioned, first, tenotomy of the tendon of the extensor proprius pollicis, with or without section of the external lateral ligament of the joint. These procedures were much practised and recommended by the older surgical writers, but have been practically abandoned of late years, owing to the very unpromising character of the final results obtained. Hüter of Griefswald, proposed subperiosteal resection of the head of the metatarsal bone, and in this he was followed by the late Professor F. H. Hamilton, and A. Rose, of New York. In a certain number of cases, particularly those in which the joint has been invaded, and in which suppuration and caries are present, this is the only operation practicable. The objection to it is, however, that it shortens the inner margin of the foot unnecessarily, and by removing the inner support of the anterior extremity of the plantar arch, forces the weight of the body in walking upon the heads of the metatarsal bones of the other toes. These soon develop a painful condition,

due to the crowding against the sole of the shoe. As before stated, this method of operating should be reserved for cases in which the joint has been invaded as a result of a suppurating bunion, or where caries has attacked the articulation.

A cuneiform osteotomy of the metatarsal bone was suggested and practised by Barker, an English surgeon. It is based upon a similar operation performed for the restoration of the symmetry of the limb in cases of genu-valgum. I have experience with this method in but a single case, and in that the result was far from satisfactory, for reasons to be alluded to further on. I do not think that this operation is destined to become a very popular one.

The proposal to perform a partial resection, or to simply remove the overgrowth, or exostosis, of the internal portion of the articular head of the metatarsal bone, made by Reverdin, promises, in proper hands, and with rigid antisepsis and careful after-treatment, to be the operation above all others best calculated to achieve final favourable results. This procedure, however, like those of Barker and Hüter, is open to the objection that, in cases in which they have been heretofore carried out, the incision from which the joint is attacked has been made upon the side of the foot, directly opposite to the articulation. As a result of this, strictures are involved in the wound that are the site of a callosity or a bursa, or both, and the chances of failure in obtaining primary union in tissues of this character are very great. This occurred in the only case in which I attempted Barker's operation, and a long, tedious course of healing followed, accompanied by septic complications. Several attempts to follow the proposal of Hüter resulted similarly. Another objection, the validity of which is borne out by my experience in these cases, resides in the fact that, from the hyperæsthesia developed at this portion of the foot during the course of the disease, as well as the exposed location of the cicatrix, the result of these operations, the pressure of a shoe is not tolerated without considerable complaint on the part of the patient. It has been asserted that the pain, under these circumstances, is as great as before the operation.

Bearing these facts in mind, I had almost abandoned operative procedures for the relief of hallux valgus, when Petersen, of Kiel, published his article upon tuberculosis of the first metatarso-phalangeal articulation. This surgeon proposed to attack the joint from its outer aspect, by an incision made between the great and adjoining toe, and extending through the entire thickness of that portion of the foot. By this method he declared the joint to be easily accessible, allowing the operator to thoroughly identify all diseased structures, and permitting of the retention of tissues not actually invaded by the tuberculous process. I at once realized that this incision, applied to the operation of hallux valgus, would do away with the objections which had deterred me from further attempts

to effect a cure of this condition by the older methods. The following comprises the history of the first case thus operated upon, together with details of the steps of the operation itself, and a new plan of after-treatment designed to prevent relapse, and at the same time allow the patient to pursue daily duties without the necessity for the application of cumbersome apparatus, and the difficulties inseparable from attempts to maintain the latter in position. *Case.*—On November 24, 1888, M. C. G., aged twenty-five years, consulted me for relief of an excessively painful hallux valgus on either foot, of four years' standing. I performed the following operation: An incision was made from a point upon the dorsum of the foot, somewhat below the level of the head of the first metatarsal bone, and just outside of that portion of the tendon of the extensor brevis digitorum which goes to the great toe; this was continued to the bottom of the web between the first and great toes. A similar incision was made on the plantar surface of the foot, slightly to the outer side of the line of the tendon of the flexor longus pollicis. The intervening parts were divided through the whole thickness of the sole of the foot, so as to join these two incisions. The great toe was then strongly adducted, and the external lateral ligament divided, opening the joint. After freeing the soft parts from the neck of the first metatarsal bone with the handle of a scalpel, the phalanx was completely displaced. The great toe was adducted still further, until its inner border lay along the inner border of the foot, its point looking directly backward; the head and neck of the first metatarsal bone, together with a large exostosis constituting the "bunion," were thus freely exposed. The latter, together with the inner half of the articular surface of the former, were sawn off by an oblique cut. The toe was then replaced in its normal position, and drainage provided for by a tube in the bottom of the gap. The soft parts were sutured; dressings of sublimate gauze and paper wool, and a splint, were applied to retain the toe in a straight position. The other foot was operated upon in the same manner. Union of the wound in the left foot was somewhat delayed by the occurrence of slight suppuration. In three weeks, however, the patient could walk comfortably, but was kept under observation until the end of the sixth week, when she was discharged from the hospital cured.

During the patient's sojourn in the hospital it was considered only necessary, in order to maintain the toe in its proper relations, to keep a straight splint of thin wood, well padded, applied to the inner border of each foot, to which the great toe was securely fastened. When, however, she was allowed to walk, and was about to be discharged, it became apparent that some retentive apparatus, less cumbersome in character than the latter, would be necessary in order to facilitate free locomotion, and at the same time guard against the possibility of a relapse of the hallux valgus.

To accomplish this the following device was resorted to: In the first place, a stocking of rather more than ordinary width was chosen, and a double line of stitching run at the site of the interspace of the great and adjoining toes; by cutting accurately between the lines of stitching, a separate cot or receptacle was provided for the great toe, similar to the thumb portion of a mitten. A shoe was then made, with a separate compartment located upon its inner border, and corresponding to the point at which the great toe should rest. In selecting a last for this shoe, care should be exercised in order to secure the so-called "common-sense" shape *i.e.*, that which presents a straight inner edge of the foot. The partition separating the compartment for the great toe from the balance of the front of the shoe, is made of two thicknesses of calfskin, and is secured in place in the following manner: The last is split, and the pieces of calfskin from which the partition is to be formed are placed in position in the slot, a sufficient projection being left to pass through a slit in what is to be the inside sole of the shoe, in which latter location it is secured while still upon the last. The shoe and welt are then lasted in the ordinary manner, the reflected upper edges of the partition being stitched to the toe portion of the upper, and the shoe being arranged, in order to facilitate putting it on properly, to lace as low down as the site of the partition, which latter may be only just sufficiently deep to get a firm hold upon the toe, about one-third the depth of the interdigital space.

It is now nine months since the operation, and the patient declares that they are the most comfortable months she has enjoyed within her recollection. The partitioned shoe and glove-stocking give her not the slightest inconvenience. She walks several miles upon a stretch, whereas, prior to the operation, it was only by most painful hobbling she was enabled to perform her household duties.

The advantages of this method of operating are: 1st. Facility of reaching the articulation and determining the exact pathological changes present, and thereby determining the necessity or otherwise of removing the entire or only a portion of the articular extremity of the metatarsal bone. 2nd. The incision is made through healthy structures, thereby, barring some error in the aseptic technique, insuring an uninterrupted and rapid course of healing. 3rd. The external lateral ligament is divided, thus eliminating this as a possible hindrance to the reduction of the deformity. 4th. It renders practicable Reverdin's proposal to remove the exostosis when it exists; this latter being the best operation for the purpose of effecting a cure of hallux valgus. Plastic exudation of an organized blood-clot at once fills up the space made by the removal of the exostosis; this is not interfered with in its separative progress by possible infection through a wound from without, and adapts itself to the new location at once. 5th. If contracture of the extensor hallucis exists to an extent sufficient to prevent easy

reduction, section of this tendon may be done through the same opening. 6th. It does not interfere with the attachments of the abductor pollicis, thereby favouring relapse from this cause. 7th. The resultant cicatrix is so situated as to be out of harm's way when the patient resumes the use of shoes. Hüter's operation, as well as that of section of the shaft of the metatarsal bone to facilitate reduction, may also be performed through the same wound.—*New York Medical Record, Sept.* 7, 1889, *p.* 253.

42.—TREATMENT OF BONE DEFECTS BY IMPLANTATION OF ANTISEPTIC DECALCIFIED BONE.—DIRECTIONS.

By Nicholas Senn, M.D., Professor of Surgery in the Rush Medical College, Chicago, Illinois.

[A very important communication from the pen of Professor Senn "*On the Healing of Aseptic Bone Cavities by Implantation of Antiseptic Decalcified Bone*," concludes with the following description of the methods he adopts, the value of which is attested by numerous clinical and experimental facts, for which the reader is referred to the original paper.]

1. *Decalcification and disinfection of bone.*—A fresh tibia of an ox is the best material for decalcification. The bone is cut in sections two inches in length, and, after carefully removing the medullary tissue, is kept in dilute muriatic acid, the fluid being changed every few days until the process of decalcification has been completed. After this has been accomplished the bone can be readily cut into pieces about one millimetre in thickness, making the sections parallel to the long axis of the bone. The acid is then removed by washing and by keeping the bone immersed in a weak solution of caustic potash. The bone is then rendered antiseptic by keeping it until it is needed in a solution of sublimate in alcohol 1 : 500 in a wide-mouthed bottle, which is kept hermetically sealed by a glass stopper to prevent evaporation of the solution. When the bone is needed, it is taken from the bottle and placed in a five per cent. solution of carbolic acid, or a weak solution of sublimate. In making the plates or discs for filling a cranial defect the bone is cut so as to correspond in thickness to the bone removed, and accurately to fit into the opening. A number of small perforations in the disc or plate should always be made, as through these openings the space underneath the bone is kept drained; at the same time the early entrance of granulation tissue into these openings effects fixation of the bone *in situ* and favours the early removal of the implanted substance by substitution with permanent living tissue. Before implantation both sides of the plate should be dusted with iodoform. For packing bone cavities the decalcified bone should be cut in thin slices or chips, which should be laid upon a compress of aseptic gauze, so as to

remove the surface moisture, when they are dusted with iodoform before they are implanted into the cavity. Aseptic decalcified bone drains, in the absence of more suitable material, can be used in packing bone cavities.

2. *Asepsis at the seat of implantation.*—The most essential condition for success in the treatment of bone defects by implantation of decalcified bone is a perfectly aseptic condition of the tissues to be brought in contact with the implanted bone. This condition is easily procured in operations on bones for lesions other than those caused by infection with pus microbes, such as tumours, parasites, and tuberculous and syphilitic affections uncomplicated by suppuration. In the surgical treatment of these affections after the removal of the diseased tissue the seat of operation must be aseptic if the ordinary precautions in the prevention of infection from without have been observed. In such cases speedy healing of the external wound and the early partial or complete reproduction of the lost bone are assured.

The next most favourable cases for this procedure are circumscribed osteomyelitic processes in the epiphyseal extremities of the long bones as we observe them in cases of primary circumscribed epiphyseal osteomyelitis, or in the form of a recurring attack in the same place, perhaps years after a diffuse osteomyelitis of the entire shaft. Under such circumstances the inflammatory focus can be located externally by the presence of a circumscribed area of tenderness, and the tender spot constitutes the guide in the search for the abscess. The seat of inflammation is freely exposed with a chisel and the walls of the abscess cavity are scraped out with a sharp spoon until healthy tissue is reached all around. The precaution should be taken to wash out the cavity with an antiseptic solution before attacking the abscess wall so as to prevent the contamination of the healthy tissue with the products of the infection by the mechanical diffusion of the pus microbes. For the final disinfection of such a cavity a strong solution of sublimate is used, and after thoroughly drying its walls it is dusted with iodoform. Iodoformization of the cavity and the implantation of antiseptic bone chips are measures which are well calculated to resist the pathogenic action of pus microbes which might still remain, and in the majority of cases will secure an aseptic healing of the wound.

This method of treating bone cavities is also applicable after operations for necrosis resulting from a previous attack of acute suppurative osteomyelitis. With a view to obtain an aseptic condition of the cavity it is necessary that the line of demarcation between dead and living tissue should have formed, the involucrum must be well developed and the soft parts in a healthy condition. The operation which precedes the implantation must accomplish more than the simple extraction of the necrosed bone, it implies the removal of all infected tissue lining the interior of the involucrum

and the fistulous tracts in the soft tissues. The involucrum must be laid open with the chisel sufficiently to expose to sight and direct treatment its entire interior for the purpose of removing with the sharp spoon all of the infected granulations, at the same time the fistulous tracts in the soft tissues must be made accessible to the same treatment. After the thorough mechanical removal of all infected tissues the wound surfaces must be irrigated freely with a hot solution of sublimate, and for final disinfection a twelve per cent. solution of chloride of zinc may be applied with a brush, after which the cavity is flushed again, dried, and iodoformized. In operations for acute diffuse osteomyelitis all known surgical resources are inadequate in rendering the field of operation aseptic, and hence contraindicate the subsequent treatment by implantation with decalcified bone.

3. *Necessity of performing the operation by bloodless method.*—I have previously made the statement that in the implantation of a disc or plate of bone into a defect in the skull the hemorrhage from the brain and its coverings should be carefully arrested before the implantation is made, as otherwise compression of the brain might arise from accumulation of blood underneath the implanted bone. The disc or plate may be relied upon in arresting hemorrhage from the vessels in the bone which by other measures it is sometimes found difficult to control. In the treatment of bone cavities in regions where it is possible to render the operation bloodless by elastic constriction, this should always be resorted to, as it prevents unnecessary loss of blood during the operation and enables the surgeon to resort to means and measures for procuring an aseptic condition, which otherwise it would be impossible to apply with the same degree of thoroughness and efficiency. Unless special indications present themselves the elastic constriction is continued until after the dressing has been applied.

4. *Implantation.*—In the treatment of a bone cavity by implantation with decalcified bone, the chips are poured into the cavity and are packed quite firmly until the surface of the cavity is reached. The bone chips act as an antiseptic tampon which arrests the free oozing from the surface of the bone which always takes place after the removal of the constrictor. Some blood escapes between the bone chips and coagulates at once, thus forming a desirable and useful cement substance, which permeates the entire packing and temporarily glues, as it were, the chips together and the entire mass to the surrounding tissues.

5. *Treatment of external wound.*—The periosteum should be carefully preserved in exposing the bone and, after the implantation, is sutured over the surface of the bone chips with catgut sutures. If the bone is deeply located, it may become necessary to apply another row of buried sutures in bringing into accurate apposition other soft parts. The skin is finally sutured with silk.

It is of great importance to secure accurate apposition of the divided soft parts in order to preserve for the subjacent bone all of its natural coverings.

6. *Drainage.*—In some instances it would be undoubtedly superfluous to secure any form of drainage, as when the cavity is perfectly aseptic and hemorrhage is not in excess of requirements, healing of the entire wound would be accomplished under one dressing. Experience, however, has taught me that tension arising from extravasation of blood often exerts an injurious influence upon the process of healing and should be carefully avoided. As it is desirable to heal as much of the wound as possible without interfering with drainage I have invariably introduced an absorbable capillary drain in the lower angle of the wound. A string of catgut twisted into a small cord answers an admirable purpose.

7. *Dressing of wound.*—The wound is covered with a strip of aseptic silk over which a few layers of iodoform gauze are applied. Over this a cushion of sublimated moss is placed with a thick layer of salicylated cotton along its margins for the purpose of guarding more securely against the entrance of unfiltered air; the whole of it is retained by a circular bandage of gauze evenly and smoothly applied. For the purpose of securing absolute rest for the limb it is placed upon a posterior splint and kept in a slightly elevated position. If no indications arise, the first dressing is not removed for two weeks, when the entire wound will usually be found healed, except a few granulations at the place where the catgut drain was inserted. A smaller antiseptic compress is applied and the limb dressed in a similar manner. It is advisable to enforce rest not only till the external wound has healed, but until the whole process of repair has been completed, which embraces a period varying from four weeks to three months, according to the size of the cavity and the age of the patient.

8. *Secondary implantation.*—If an operation is followed by suppuration the result of imperfect antisepsis tubular drainage must be established and the same treatment pursued as in suppurating wounds. If suppuration takes place soon after the operation and is profuse, it is probable that all of the bone chips will be lost. If it develops after granulation tissue has had time to form and the purulent discharge is moderate in quantity, the prospects are that the bone will remain and serve its purpose as a nidus for the granulation tissue. In such cases an antiseptic irrigation should be made every three or four days until suppuration has ceased. If the bone chips are lost by suppuration or have to be removed for the purpose of a more thorough disinfection of the cavity, no attempt should be made at re-implantation until suppuration has been arrested, or, in other words, until the cavity has become lined with granulations, and is in a comparatively aseptic condition, when the time for secondary implantation has arrived.

After the cavity has been irrigated with a strong antiseptic solution it is dusted with iodoform and the granulations are scarified in a number of places for the purpose of obtaining a sufficient amount of blood to fill the spaces between the bone chips, which are implanted in the same manner as in the treatment of a recent cavity. Complete closure of the external wound under these circumstances is seldom obtainable, and the surface of the exposed portion of the cavity should be provided with a thin layer of Schede's moist blood-clot. The antiseptic properties of the material used in packing the cavity exerts a potent influence in maintaining asepticity after secondary implantation.—*American Journal of Medical Science, Sept.*, 1889, *p.* 238.

43.—THE EMPLOYMENT OF TURPENTINE AND SCRAPING IN UNHEALTHY WOUNDS.

By W. Mitchell Banks, F.R.C.S., Surgeon to the Royal Infirmary, and Professor of Anatomy, University College, Liverpool.

Some agents, like the perchloride of iron, are admirable styptics, and some, like iodoform, chloride of zinc, and carbolic acid, are most effective antiseptics; but I know of no remedy which combines the two properties to the same extent as common turpentine, while at the same time acting as a direct stimulant to healthy granulation. The only objection that may be urged against its use is that it may be painful. Its use is attended with much less pain than would be imagined *a priori*. In the case of a clean cut wound it is painful for some hours, but its application causes no suffering at all in the case of old wounds, sinuses, or abscess cavities. The single word of caution in employing it, is to see that it does not come on the skin, which it of course blisters; and most of the pain which I have ever seen attending its use has been caused by careless plugging, whereby the drug was left in contact with the skin.

To sinuses and chronic suppurating cavities or surfaces mechanical surgery has been most advantageously applied, in the way of scraping them clean from the unwholesome granulation tissue which covers or lines them. Many of us will remember that we first became acquainted with this tissue under the name of the "pyogenic membrane," a name which in itself sounded sufficiently dangerous to prevent any rash meddling with it, and which possibly contributed to the fact that it was always very gently treated by minor caustics or stimulating lotions, in place of being clean swept away. Volkmann's spoon seems to me to be one of the most useful of modern inventions; of more real service than all the endoscopes that ever were invented.

By means of scraping a great future is opened out for the treatment of these most troublesome cases, strumous cervical glands.

I confess that the old ideas of constitutional taint which I had been taught about strumous glands, had so firm a hold upon me that it was a long time before I could be got to appreciate the value of direct surgical attacks upon them. Syrup of iodide of iron, cod-liver oil, and a lotion of some sort, was the regulation practice. But nowadays these same glands are shelled out or opened and scraped with the most admirable results. From being among the most hopeless of the affections seen in the hospital out-patient department, they are now satisfactory objects of treatment. Of old the softened gland was too often allowed to burst spontaneously, the blue, thinned skin then sloughing or curling up and leaving an unsightly cicatrix—a life-long vexation to the patient if a female. But, now, so soon as a gland is soft, we cut into it, scrape it out, fill it with an antiseptic (say turpentine), and then drain it with a little tube. A mere line is all that is seen by way of mark. The sooner all such glands, when once believed to be genuinely tubercular, are either removed or scraped out the better, because there can be no doubt of the direct spread of infection from one gland to another. How often do we find one side of the neck, all the way down, a mass of hardened glands, while the opposite side is absolutely sound and free from disease. Whether it is a bacillus or not that sets up the mischief, and whether the bacillus gets into the cervical glands *viâ* the tonsils, or by the way of carious teeth, are points not as yet absolutely settled. But, at any rate, the theory is a very encouraging one, and helps one to cut out and scrape out tubercular glands with a great amount of faith and hope—which is rapidly being made into certainty by enlarged experience. So that the best method of treating a softening strumous gland with which I am acquainted is as follows:—Give the child chloroform. Make a very small hole in the gland with a tenotomy knife, and introduce a small Volkmann's spoon. Scrape out everything that can be got out by scraping, and squeeze and press the cavity. When nothing more can be got out, fill the cavity with a long, narrow strip of lint dipped in turpentine, poking it through the small hole with a probe. At the end of two days pull out the lint and introduce a drain-tube. Pass a needle and thread through the tube on a level with the skin, and then slip over the tube a circular piece of plaster with a hole in the centre and having its margin nicked. Cut the tube short off and tie the ends of the thread over the plaster. The tube is thus rendered immovable. Over it may be placed a little bit of absorbent cotton wadding dipped in an antiseptic lotion, and covered in with a bit of jacquonette. After a few lessons the child's mother or nurse will learn to wash out the cavity with a syringe morning and evening and to apply the dressing, as well as to take out the tube, clean it, and replace it every third day or so. By waiting patiently until the tube is

literally pushed out of the cavity, a mere white spot is frequently the only remaining evidence of what has been done. If a depression or dimple remains, it can be afterwards elevated by loosening the cicatrix from the subjacent tissues by a tenotomy knife.

In the excision of joints, scraping is of the utmost value. The tedious delays which formerly rendered an excision of the knee-joint, for example, such a wearisome job, are now greatly diminished. With the curved scissors all the thickened gelatinous synovial membrane, which was bound to perish before any healing could take place, is clipped away, while every burrowing sinus is scraped clean, and all suspicious places on the cut surfaces of the bones are punched out with a strong spoon, just as one would punch a decayed bit out of an apple.

The bubo, too, is deprived of many of its terrors. A gentleman came to me yesterday (Tuesday), for instance, with one on each side. From their history and appearance it was clear that they must go on to suppuration. I told him to poultice them and keep at his occupation, which he was most anxious to do. On Friday they ought to be soft in the centre. I purpose then giving him an anæsthetic, cutting them across vertically, scraping out the broken down tissue, and packing them with turpentined lint. My expectation is that he will be at work again about Tuesday with two clean granulating wounds. At any rate I have promised him so.—*Liverpool Medico-Chirurgical Journal, July* 1889, *p.* 215.

44.—ON THE TREATMENT OF STRUMOUS GLANDS.

By John Duncan, M.D., F.R.C.S.E., Surgeon to the Royal Infirmary, Edinburgh.

In the treatment of strumous glands I think we ought always to comfort ourselves and increase our activity by remembering that the warfare between the bacillus and the tissue of the body is an exceedingly close one, in which very little interference on our part may determine the victory to one side or the other. With that view, you go with greater comfort and decision to the treatment of the case. You may lay down two general principles which are applicable to all inflammatory and tuberculous disease. First, that the treatment must be etiological, must consist in the removal of the cause; and, second, what has been recognised from all time, but more especially since Mr. Hilton's book was published, that rest is a universal treatment in all inflammatory affections. Well, then, as to the removal of the cause, How may you remove the cause? First, you will, of course, remove the subsidiary or local cause, and in this respect you will bear in mind the extreme importance of removing or preventing septicity. Next in the etiological treatment of the case comes the removal of the tissues affected. This may be done in two ways—either by excision or

by scraping as Mr. Annandale pointed out. The method by excision appears to me applicable to a comparatively small number of cases—to those, perhaps, in which a single gland is affected, is easily removable, and which, without progressing rapidly or being stationary, has yet resisted other methods of treatment. It is right, I have no doubt, in these cases to remove it as a possible source of future general infection. When the glands are more numerous, the scar that you produce, the matting that generally exists, the impossibility of tracing out the many glands that you did not recognise from the outside, make excision a comparatively rare resource. Scraping, however, is undoubtedly most useful, always to be employed when you open a gland, and most valuable when the gland is already open, with great certainty enabling you to remove the septicity. I do not think you remove the whole tubercle, but it has to be remembered that quantity is an element of great importance in the warfare, and that, Providence being here, as elsewhere, on the side of the biggest battalions, if you take away so many bacilli, you may place the victory on the side of the tissues. Third, in the etiological treatment you have the possibility of destroying the bacillus. The injection of iodine, I am sure, has given good results before suppuration. I have tried the bichloride injection. I have certainly seen glands that resisted other treatment improve or disappear; and this result would be remarkable if they were simply adenitis. I am quite sure that the iodine internally is a great deal better than externally. In adenitis of a chronic character, the result of local irritation, counter-irritation may do good; but when you have a tubercle bacillus, how can you expect by means of blistering or iodine to cure it? Blistering, iodine, and so on, may, however, do good after the glands have opened, by the painting of iodine well over the interior or pushing the blistering fluid under the skin; and I believe it does so by proving inimical to the bacillus. Passing from these various means of treating etiologically, we come to the treatment by rest, and this is, I think, a method of treatment which has been too much neglected. I have the greatest possible faith in it. It must be complete, absolute, just as you would make it for the spine, the knee-joint, or any other case of tuberculous disease. You must put the neck and the head at rest; and in order to do that I have tried many things, Mr. Fleming's bags for the treatment of cervical caries, and an invention of my own. But I have come to the conclusion that the only thing that really is very nice, and does what you want, is the use of some sort of cuirass, with a good stock running up from it and catching by the jaw and the occiput so as to hold the head steady. The helmet and cuirass form an exceedingly useful apparatus for the treatment of these glands in every stage, and in the earlier stages they will frequently cure with rapidity. If the

patient is not a good soil, rest will do; even if he is, it will have a remarkably good effect. Rest, then, is a matter of great importance. Let me sum up the methods of treatment which I think ought to be recommended. First, the glands being in the early stage, you apply all those internal hygienic remedies which the physicians will point out to you. This is most important. You apply also rest by means a well-padded stock and cuirass. Supposing it has further advanced but not suppurated, then I should use the injection of iodine—two, three or four drops injected into each gland, according to circumstances. I think the iodine is better than the bichloride. I tried igni-puncture; and I should recommend that, if any one does try igni-puncture, they use that which I used long ago, putting in the platinum wire through the gland, and threading upon it hollow needles, taking care not to heat the hollow needles and hurt the skin. You can then destroy large portions by electric heat without making a skin wound. I must say that igni-puncture has not been so satisfactory as I should have expected, although I have seen cases in which considerable improvement followed, whether because I at the same time put at rest or not I am not quite sure. Suppose the iodine injection fail, then opening and scraping. I should add to the scraping the injection of parasiticides. I myself use salicylic or boracic acid for the purpose of destroying the bacilli, whether pyogenic or tubercular. And, lastly, in a few and limited number of cases, excision of the glands.—*Edinburgh Medical Journal, August* 1889, *p.* 172.

45.—ON THE TREATMENT OF SCROFULOUS GLANDS.

By Frederick Treves, F.R.C.S., Surgeon to and Lecturer on Anatomy at the London Hospital.

The treatment of scrofulous glands involves many phases and many difficulties. Although it cannot now be said, that struma is "the mere despair of surgery," it is still a fact that the disease may withstand every art which modern surgery can ply. The larger proportion of the cases, however, yield readily and most kindly to local and general measures, and even when the patient is "all swoln and ulcerous, pitiful to the eye," it is possible to claim for surgical treatment a more than occasional cure.

The patient should be placed under the best hygienic conditions, and in a large proportion of hospital cases this is the main circumstance in the treatment. Special benefit attends a long residence on the sea coast. Those places appear best suited for strumous disease where acres of seaweed lie exposed to the sun at low tide. Patients will often improve rapidly at Margate who have experienced no benefit from a stay at Brighton. It is well if the winter

can be spent in some warmer climate, such as is afforded by the Riviera, and the summer in some suitable town upon the English coast. Among foreign health resorts Kreuznach deserves mention. Cases of widespread gland disease of a low grade improve there, and the same may be said of glands which are suppurating extensively. The place is, however, depressing, and patients who have resided there speak of their stay in Kreuznach with an air of melancholy.

Of the diet of the subjects of gland disease nothing need be said; and in the matter of medicines there is little beyond the well-worn circle of iron, arsenic, quinine, and cod-liver oil. Iodine, in the form of Kreuznach water, appears in many instances to act with distinct benefit. The very general administration of the syrup of iodide of iron partakes rather of the nature of a rite than of a serious feature in treatment, and probably ranks in value with the royal touch. I have not been able to ascribe any certain or specific advantage to the use of sulphide of calcium.

The local treatment embraces the following points:—Any disturbance of the periphery whence the affected glands derive their lymph vessels must be dealt with as a matter of the first importance. Cases of primary infection of the cervical glands are exceedingly uncommon. In the great proportion of instances a chronic inflammation is induced in the gland by some trouble active in the area from which the lymphatics concerned arise. Many cases of strumous disease commence as a result of the pharyngeal catarrh or sore-throat incidental to certain of the eruptive fevers. Common causes of the disturbance—so far as the cervical glands are concerned—are enlarged tonsils, scrofulous pharyngitis, affections of the mouth and teeth, coryza, ozæna, otorrhœa, phlyctenular ophthalmia, and eczema of the scalp. It is of little avail to attempt the reduction of an enlarged gland if an inflammation of its substance is maintained by neglected caries of the teeth or persistent sore-throat. If it be recognised that the glandular disorder is secondary, it will be obvious that the first local measure in the treatment of the case must be directed against the primary local cause. To blindly paint a gland with iodine while the eczema of the scalp which primarily induced it is left to flourish is to waste a valuable drug.

Specific local applications to the glands, as distinguished from the common applications in general use in surgery, have met with but discouraging success. Iodine paint is probably in nearly all cases harmful. Its reckless use is a surgical mystery, and its employment is of interest as a relic of the customs of a bygone age. Ointments often appear to have some good effect, and the benefit that attends them depends possibly more upon the rubbing than upon the composition of the unguent. Compresses of seaweed, of Kreuznach water, and of sea water act obviously as cold applica-

tions, but it does not appear that they can claim any advantage over the simple water dressing. The gland should be protected from all irritation, and from fluctuations of temperature. These ends can be met by the use of a slender silk scarf.

The most important local measure consists in giving rest to the part. Rest is a primary factor in the treatment of all inflammatory conditions. The disregard of this simple means is often forcibly illustrated in the treatment of the strumous neck. A patient with an inguinal bubo in a state of suppuration is not allowed to walk, and the subject of inflamed glands in the axilla is not allowed to use the arm. Yet a child with an identical affection of the cervical glands is permitted to keep the neck in almost incessant movement. The neck of a child is seldom at rest, and the obstinacy of glandular affections of the part, and of the sinuses that result therefrom, is certainly due in very great measure to the fact that the movements of the neck are in no way restrained. The neck may be kept at rest by a simple home-made stock, or by the wood-wool collar used by Mr. W. Knight Treves at the Margate Infirmary, or by the special splint I described some years ago. In children or adults with long hair this splint may be so worn as to be unobserved. Of the good effects of the treatment by rest I can speak in emphatic terms, especially in the earlier stages of the disease, and in cases where suppuration is threatening. The measure of the good result may be estimated by comparing cases of inguinal gland disease treated by rest with an equal number treated during unrestrained movement of the limbs.

The remaining point concerns the operative treatment of gland disease. A large proportion of the cases yield to the general and local measures already described. A not insignificant residuum remains in which operative measures have to be considered. These cases include such as have resisted a milder treatment, such as are deliberately progressing, and such as are in some stage of suppuration. Into the physical characters of the gland which will at some time or another demand operation it is out of place to enter here. It must be allowed that the caseous gland is—except in the rarest instances—hopeless, and that neither climate, nor drugs, nor splints, nor local applications will cause the mass of dead tissue to disappear. The prognosis is probably on a precise level with that in bone necrosis. When once a sequestrum has formed, it is not hasty to assume that it will be separated, and that the tissues will not resume their normal quiet until the dead matter has been got rid of. It is possible that a fragment of necrosed bone may become encapsuled and rendered for an indefinite time inert; but in advising treatment surgeons speculate little upon that possibility. Many of the operations performed upon scrofulous glands may be at once disposed of. The treatment by crushing, by solvent or irritant injections, and by the seton, may be characterised as bad. A scarcely

milder criticism may be passed upon the method of treatment by cautery puncture, which I was indiscreet enough to advise in 1882. I still believe this method to be the best for evacuating pus situate in the substance of large glands, provided that no more radical measure is intended. Glands which have been treated by cautery puncture have become shrunken and have disappeared, but the measure is of very limited application and is uncertain. The removal of a diseased gland by scraping out its softened substance with Volkmann's spoon and applying the actual cautery to the wall of the resulting cavity is a procedure which is applicable to certain cases only. It cannot claim to be regarded as a general measure. It should under no circumstances be employed in instances where the skin is still sound. It is of great value in cases where suppuration has occurred, where a sinus persists, and where it would be difficult or impossible to remove the relics of the diseased gland with the scalpel. The scraping should be complete, every trace of disease should be removed, the cavity left should be dressed from the bottom, and the neck should be kept absolutely at rest during the healing process. An unsightly scar is apt to result, and it is not unusual for the cicatrix to break down once or twice before it finally heals. Operations with Volkmann's spoon are, in the case of large gland tumours, very commonly incomplete, and have to be many times repeated. When the depths of the neck are invaded with the spoon the operation must certainly be classed as dangerous. Excision of strumous glands offers the simplest, the safest, and the most certain method of treating this obstinate affection. The operation is in accord with the primary principles of surgery, is definite, and is attended with admirable results. Recent improvements in our knowledge of the treatment of wounds have rendered the operation possible, and with Mr. Treves of Margate rests the chief merit of carrying the measure into actual practice. In favour of the treatment by excision the following points may be urged: the glands are completely and cleanly removed; the wound is an incised wound; the resulting cicatrix is thin, fine, and white. If the case be dealt with early, it must be further pointed out that the local spreading of the disease from gland to gland is arrested, the mass may be removed through a simple incision before suppuration supervenes, an unsightly and characteristic scar is avoided, and the wearisome period of the expectant treatment is replaced by a measure which can claim to be final. Although glands can be removed at any period by excision, it is needless to say that the operation is the easier the earlier it is performed. The number of the glandular swellings offers no bar to the excision. From one patient I have removed eighty-four glands, all of which were caseous, while not a few were suppurating. The sooner the operation is performed, the less extensive is the area involved and the less conspicuous is the scar. The wounds should

follow as far as possible the natural lines or folds in the skin of the neck, and should be horizontal rather than vertical. An incision made in the natural cutaneous line at the level of the hyoid bone may lead to a scar which becomes actually invisible. The gland should be *cut* out, not *torn* out. In the treatment of the resulting wound stress may be laid upon the following details: All bleeding must be well arrested. The wound must not be washed out by too strong an antiseptic solution. The edges of the incision should be very carefully adjusted, and maintained in position by sutures of silkworm gut, which are removed on the fifth or seventh day. No drainage-tube should be employed if it can be avoided; if the use of one is inevitable, it should not be retained for longer than from twenty-four to forty-eight hours. The part should be dressed with sponge only, and should be subjected to sufficient direct pressure to obliterate the "cavity" of the wound. The neck must be kept absolutely rigid for not less than ten days; and to this rule no kind of exception should be made. It is impossible to carry out the two last-named propositions if the patient has greatly enlarged tonsils. For no measure which has been employed for the treatment of the strumous neck can such excellent results be claimed as attend upon the simple excision of the glands. Considering the grave complications attending the disease, the tedious path it follows, and the disfigurement it leaves, it may be permitted to regard this operation as not the least of the improvements in modern surgery.—*Lancet, Sept.* 21, 1889, *p.* 583.

46.—ON THE PREPARATION OF ABSORBABLE DRAINAGE TUBES FROM THE ARTERIES OF ANIMALS.

By Henry G. Beyer, M.D., M.R.C.S.Lond., Passed Assistant-Surgeon United States Navy.

In the preparation of drainage tubes from the arteries of animals, two things must be kept constantly in mind, namely: (1) Any method of preparation to be of value must insure the absolutely aseptic condition of the tubes as its invariable result; and (2) all the different manipulations pertaining to the method about to be described must be carried out under strictly antiseptic precautions, just as much as any surgical operation for which the tubes are intended.

The arteries to be used must be obtained fresh from the ox or cow and scrupulously examined as to their soundness. The slightest imperfection with regard to this must be deemed sufficient to eliminate them; the material is cheap, easily obtained, and plentiful. The arteries coming from vigorous young cows or heifers will be found to give the best results.

As the arteries are bought from the butcher a good deal of the fatty peri-arterial tissue, together with nerves, will be found

adhering to them. This tissue is easily removed by means of a pair of scissors, and the arteries, after having been freed from it, are put into a clean porcelain dish and allowed to soak in clean cold water for two hours; should the water become discoloured, which is almost always the case, it must be renewed as often as is necessary until it remains colourless and every little blood-clot has been washed out. Any little extra attention which is paid to this point will amply repay in the end.

After the arteries have thus been thoroughly cleaned and soaked in water, the next thing to be done is to remove as much as possible of the adventitial coat, which has become very loose and pliable by the maceration in water. For this purpose the arteries are taken out of the dish and fastened by means of tacks at both their ends on the carbolized edge of a clean table, at the same time putting them considerably on the stretch. This fibrous or adventitious connective tissue, forming the outer coat of the arteries, is now seized with the thumb and index finger of the left hand, and cut away by means of a sharp pair of scissors, held in the right hand; the artery must be gone over in this manner several times, and be kept moist during this entire process by means of a sponge soaked in water until the pink musculo-elastic circular coat begins to shine through the remaining and very thin coat of adventitia. It is considered neither possible nor necessary to remove, without serious injury, every trace of the adventitial coat and the thin film which usually remains is soon absorbed; it seems to favour the growth of granulations towards the tubes, and, hence, forms a desirable rather than an objectionable feature. On the other hand, when too much of this tissue is allowed to remain, the tubes become slightly thicker than desirable, and, of course, would be absorbed more slowly.

The removal of the adventitia having been accomplished in the above described manner, the next step to be taken is to boil the arteries for fifteen minutes in distilled water, the boiling to be done in a porcelain dish. By this means we not only harden the arteries to a certain extent by causing the thorough coagulation of their albuminoid constituents, but we also most thoroughly sterilize their tissues. After the boiling, the arteries are placed in another porcelain dish, containing a 5 per cent. solution of carbolic acid in water, and any superfluous shreds of fibrous connective tissue may easily be removed with the fingers, which must, of course, be thoroughly clean and carbolized. Holes are now cut into the coats of the arteries with a pair of sharp, clean scissors, or, better, with a punch which might be made for this purpose. An instrument like the one now used for canalization, but, of course, much smaller, would no doubt answer the purpose very well indeed, and produce openings perfectly uniform in size, a matter which cannot be controlled in free-hand cutting by means of a pair of scissors. After the holes

have been cut they are preserved in a 5 per cent. solution of carbolic acid in water and kept there for the next twenty-four hours, changing the solution once or twice during that time.

If the utmost cleanliness has been observed thus far, the tubes ought to look almost white at this stage of the process, and while floating in the solution but a very thin film of fibrous connective tissue may still be seen adhering to them. After they have been thoroughly carbolized in this manner they must be drawn over glass rods of different sizes and sufficiently large to put them slightly on the stretch. This must be done very carefully and with thoroughly clean and carbolized hands. The slight stretching which they experience over the glass rods will tend to make their coats still thinner. Whatever their condition on these glass rods, whether thick or thin, it will be the state they will preserve when finished.

These glass rods, with the arteries in place, are now slipped into a long, wide-mouthed, thoroughly clean bottle containing 95 per cent. alcohol, which will need to be changed but once during the next twenty-four hours. After keeping them two hours more in absolute alcohol, they must be removed from the glass rods very carefully without being twisted; traction should be made in a straight line and with hands that are not only perfectly sterile but which must have been dipped into absolute alcohol.

From the glass rods they are immediately dropped into a wide-mouthed bottle containing the pure oil of juniper berries in quantity sufficient to keep the tubes thoroughly immersed. Here they may be allowed to remain for forty-eight hours without being disturbed. It will be seen that the walls of the tubes in this oil very soon become thoroughly transparent, assuming, at the same time, a very distinct and beautiful amber tint, not unlike that possessed by the bone-tubes of Neuber. Finally, these tubes are transferred from the oil into absolute alcohol, in which they are preserved until used.

It will be noticed that the above-described method of preparation of the arteries of animals for drainage-tubes is, with the exception of a few unessential modifications, similar to the one which is used in the preparation of bone-tubes by Prof. G. Neuber, one of the most zealous and successful promoters of antiseptic surgery in Germany, and formerly assistant to Professor von Esmarch at Kiel. Kocher's method, as practised in the preparation of catgut ligatures, was also embodied in the above method for the arteries, for the reason that experience has proved that the ligatures made according to this method are absolutely safe and thoroughly trustworthy; hence these ligatures are now used by the most experienced surgeons in preference to all others.

The oil of juniper seems to render the arteries, previously hardened in alcohol, still harder, and, consequently, makes them more efficient and serviceable than those hardened in alcohol alone. The

simplicity of the method is an argument in its favour when compared with the method of preparation of drainage-tubes out of bones. It is especially advantageous that the surgeon, with but little care and expenditure of time, can make the tubes himself, needing neither chisel nor drill, and has the satisfaction of rendering them completely aseptic under his own personal supervision. Tubes of all sizes and diameters are found already formed in the animal, the thickness of these coats varying according to diameter, and both being well proportioned, one method suffices for them all, the largest requiring no more work than the smallest; they can be made of any desired length, and admit of being cut with the scissors or knife without splitting or losing their shape or contour in any way.

In conclusion, it must be mentioned that these tubes should not be allowed to remain too long in carbolised solution before being introduced into the wound, since this would cause them to swell up too much, and a few seconds' immersion is quite sufficient for the purpose of removing the few drops of alcohol which adhere to them. The process of absorption is prompt, thorough, and highly satisfactory in every respect, taking place after the manner so often described for catgut ligatures.—*Medical News, Aug.* 3, *p.* 113.

BRAIN AND NERVOUS SYSTEM.

47.—ON CRANIO-CEREBRAL TOPOGRAPHY.

By William Anderson, F.R.C.S., and G. H. Makins, F.R.C.S., Assistant Surgeons, St. Thomas's Hospital, London.

[After reference to the work of previous writers, and a tabulated statement of the indications given by different authorities for the position of the principal tissues, Messrs. Anderson and Makins say:]

The details of the system we venture to propose will be found in the current issue of the *Journal of Anatomy and Physiology.* It will be sufficient here to state that the principal researches were carried out by means of experimental punctures made at certain points previously marked upon the scalp, and that the subjects were twenty in number—fourteen men, three women, and three children (aged two and a half, eight, and fourteen),—but, as both hemispheres were examined in each case, the total observations for each fissure may be taken as forty. Broca's method was adopted in preference to any other, because in this the relations between brain and cranial wall are in no way disturbed, and if the point of perforation be carefully fixed there is no reasonable probability of errors of observation. A supplementary set of examinations dealt

with the relation of certain of the cranial sutures, eminences, &c., to the skull as a whole, with a view to determine the range of variation of the landmarks hitherto employed in cerebral localisation. The main general deductions from the experiments were: firstly, that the normal variability of the fissures is very considerable in different subjects, and even on the two sides of the same brain, and it is only by finding the mean of the variations that the best position for the application of the trephine can be calculated; and secondly, that the positions of the various sutures, eminences, and ridges are not entirely or equally trustworthy as indications of the localities of the cerebral convolutions, as the former may vary under conditions that have no influence upon the latter. This being stated, it is only necessary to refer to the diagrams showing the plan of construction of our cranial chart, and the relations to it of the more important cerebral sulci. (See Figs. 1, 2.)

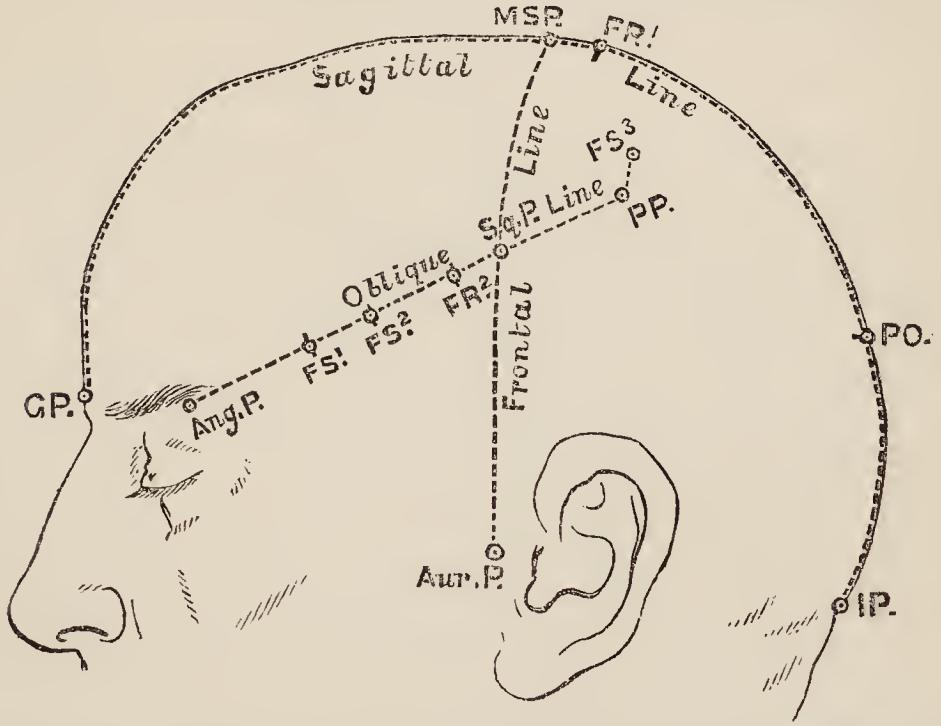


Fig. 1.—Cranio-cerebral guiding lines, traced upon a cast of Professor Cunningham's (from a photograph.) GP, Glabellar point; glabella opposite superior border of orbit. IP, Inial point, at external occipital protuberance. MSP, Mid-sagittal point; midway between GP and IP. Ang.P, Angular point; external angular process opposite upper border of orbit. Sq.P, Squamosal point; intersection of oblique and frontal lines at junction of middle and lower thirds of latter. PP, Parietal point; termination of oblique line, equidistant with FS^2 from squamosal point. Aur.P, Preauricular point; depression in front of tragus, at level of upper border of external auditory meatus. FS^1, "Commencement" of fissure of Sylvius, $\frac{5}{12}$ths of distance from Ang.P. to Sq.P. FS^2, Bifurcation of fissure of Sylvius, $\frac{7}{12}$ths of distance from Ang.P. to Sq.S. FS^3, Termination of fissure of Sylvius, $\frac{1}{2}$ an inch above PP, in a direction parallel to frontal line. FR^1, Upper extremity of fissure of Rolando carried to sagittal line in direction of fissure, $\frac{3}{8}$ths of an inch behind mid-sagittal point. FR^2, Lower extremity of fissure of Rolando carried to oblique line in direction of fissure, $\frac{3}{8}$ths of an inch in front of squamosal point. PO, External parieto-occipital fissure, carried to sagittal line in direction of fissure, $\frac{7}{12}$ths of distance from MSP to OP.

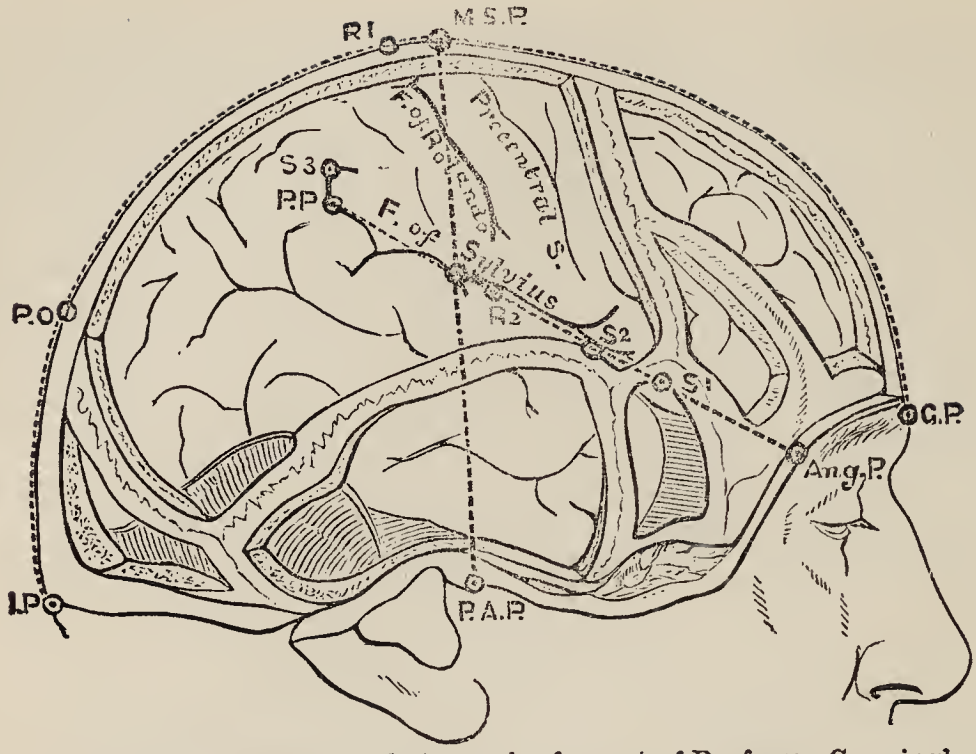


Fig. 2.—Outline traced from a photograph of a cast of Professor Cunningham's. For references see Fig. 1.

It will be noticed that the standard points are few, and are liable only to a very small degree of variation in different subjects; that the frontal and oblique lines by which the course of the fissures of Rolando and Sylvius are mainly indicated undergo changes of length and direction in association with variations in the size and form of the skull, and are hence applicable for heads of all dimensions and types, and appear to be adaptable for children as well as adults; and that the test points in the course of the different fissures are measured as far as possible in fractions of the length of the lines, and not in inches and centimetres, in order to secure a similar adaptation to crania of all dimensions. This rule is departed from only in the case of the two extremities of the fissure of Rolando, where the necessary adaptive changes are sufficiently secured by the shifting of the frontal line.

The following indications may now be quoted from our paper in the *Journal of Anatomy and Physiology*:

1. *Fissure of Rolando.*—The upper extremity, carried for convenience of admeasurement as far as the longitudinal fissure (in line of the sulcus), was found to lie in all cases between the mid-sagittal point and a point three-quarters of an inch behind it. Its distance behind the mid-sagittal point, however, bore no constant relation to the length of the sagittal line, and hence the central spot for the application of the trephine may be most safely fixed at three-eighths of an inch behind the mid-sagittal point. The superior connecting gyrus between the pre-central and post-central (ascending frontal and parietal) convolutions occasionally appears only

on the mesial surface of the hemisphere—in this case the fissure of Rolando actually reaches the longitudinal fissure. The lower end of the sulcus, carried into the fissure of Sylvius, lies in the squamosal line between the junction of this line with the frontal line (squamosal point), and three-fourths of an inch in front of this. The centre of the trephine may hence be applied, in the squamosal line, three-eighths of an inch in front of the squamosal point. In four instances the sulcus really joined the horizontal limb of the Sylvian fissure. The angle formed, with the upper border of the hemisphere, by a line connecting the two extremities of the fissure of Rolando, in eight cases was found to range between 55° and 70°, in twelve out of the sixteen fissures falling between 60° and 65°. The course of the fissure is extremely capricious, and tracings taken from opposite hemispheres often differ considerably from each other. (See illustration in *Journal of Anatomy and Physiology.*) A strong curve with a backward convexity is not unfrequently met with in the upper third, and a second smaller curve in the opposite direction may sometimes be found near the lower extremity of the sulcus.

2. *Fissure of Sylvius.*—The place at which the frontal and temporo-sphenoidal lobes appear to separate when seen from the lateral aspect of the brain—the so-called "commencement of the fissure of Sylvius"—can scarcely, from its very nature, be fixed with complete exactness, but it may be computed with sufficient accuracy for all practical purposes. It was found to lie in the squamosal line between $1\frac{1}{8}$ in. and $1\frac{1}{2}$ in. behind the external angular processes, or about $\frac{5}{12}$ths of the distance between the point and the frontal line. The bifurcation of the fissure lies in the squamosal line at a point from $1\frac{1}{2}$ in. to 2 in. behind the external angular process, or at $\frac{7}{12}$ths between this process and the frontal line. The course of the horizontal limb from the bifurcation to the frontal line corresponds closely to the squamosal line and a continuation of this backwards for an equal distance behind the frontal line (to parietal point in diagram), it then turns upwards for about half an inch in a direction parallel to the frontal line. The mode of termination of the fissure is, however, so uncertain, that a circle of an inch in diameter failed to cover all the variations in the twenty subjects examined by us. The parietal eminence is nearly always closely related to the point in question.

3. The *external parieto-occipital fissure* joins the longitudinal fissure at a point averaging $\frac{7}{12}$ths of the distance measured from the mid-sagittal point to the external occipital protuberance, and lies near to the apex of the lambdoid suture. In operations in the neighbourhood of the longitudinal fissure, it is of course necessary to take into consideration the width of the superior longitudinal sinus and its frequent deviation towards the right side in the posterior half of its course. An endeavour was made to ascertain the

average positions of the superior and inferior frontal fissures, but these were found to be so irregular in their course as to baffle all attempts to secure indications of any value.

As a practical point it should be mentioned that the mobility of the integumental structures covering the cranium may lead to a misplacement of the trephine aperture, and to obviate this source of error it is desirable to pierce with a strong needle or pin the soft parts at the centre of the spot marked for investigation, and fix the point of the instrument in the bone before making the incision for exposure of the required portion of the skull cap. The small depression in the outer table will then serve for the application of the pin of the trephine.—*Lancet, July* 13, 1889, *p.* 63.

48.—ON THE SURGICAL TREATMENT OF INVETERATE TIC-DOULOUREUX.—CARNOCHAN'S OPERATION.

By Robert Abbe, M.D., Professor of Clinical Surgery, New York Post-Graduate Medical School and Hospital.

The procedure to which I invite attention is not a new one entirely, but so rarely advocated, and yet so important, that it impresses me as fully worthy of our time to-night. Fortunately, cases of obstinate tic douloureux are not very common. When they become chronic there are few diseases that produce the agonizing distress of the constantly recurring shocks of acute pain in the cheek, jaw, and often half the head. It distracts the mind from work. It seizes the victim every few moments in the midst of conversation, forces tears and exclamations, produces salivary flow in excessive amount, prevents eating and sometimes sleeping, and brings him to the verge of despair. The time of its continuance is often measured by years, and, while it does not usually wreck the patient's physique, it exhausts his powers of endurance and work. The store-house of medicinal remedies has been exhausted without reaching most of the cases, and it has not been until recent years that surgery has been able to rescue these sufferers.

In 1851 Dr. J. M. Carnochan operated in the first case for complete resection of the second branch of the fifth pair from the foramen rotundum to the infra-orbital foramen—with the removal of Meckel's ganglion—with complete success. This marked an era which has been proved by numerous other successful cases. Prior to his publication in 1858 the simple subcutaneous section of the infra-orbital nerve in the cheek had had many ardent advocates and as many opponents, but no one dared nor cared to go back of this point to extract the nerve. In the early part of the century Brodie speaks of the "*notorious failure of simple nerve section in tic douloureux*," and Velpeau, Stromeyer, and others speak of the momentary relief only that comes from it. The weight of opinion

had led to its practical abandonment. The discovery of the value of resection of portions of nerves in obstinate neuralgia led to the delicate operation of Langenbeck to remove a considerable portion of this nerve from the floor of the orbit. He isolated the bundle of nerves at the infra-orbital foramen in a small incision, and then passed a narrow curved bistoury into the outer side of the orbit below the lid, inward toward the posterior part an inch and a half, when, on turning it down, he cut the nerve in its groove and pulled it out by the infra-orbital end. This method prolongs the period of relief from pain, but recurrence follows.

Nothing so bold as Dr. Carnochan's operation had been previously tried. He operated as follows: A V-incision was first made below the eye, and from its apex a straight cut was extended downward through the entire cheek and lip half-way between the nose and the corner of the mouth. The nerve ends were then gathered up at the foramen of exit and a trephine was applied to the front of the jaw, removing the front bony wall of the antrum. The roof of this cavity, being of thin bone, is readily broken in and the nerve drawn down from the orbital cavity. The back wall of the antrum is next broken away and removed, which exposes the spheno-maxillary fossa, which at this point is little more than half an inch deep. The nerve can now be cleaned away from its cellular surroundings and traced to the foramen rotundum, which is on a line with the inner wall of the antrum. Here it is readily cut square off. The posterior dental nerves and Meckel's ganglion connect in front of this, and thus all communication of the jaw with the nerve centres is cut off beyond the chance of repair. This method he followed in all his patients. A few years later Dr. James R. Wood added several cases to the list, and modified the operation only in not making the cut clear through the lip. Their work, as was usual in those days, was followed by what they called "healthy suppuration" and excellent healing, the antrum being syringed out if needed during the cure. In 1879 Dr. F. S. Dennis, of this city, collected twenty-one cases of this operation, and the report made a most admirable showing in favour of this operation so creditable to American surgery. The method is probably the best one for approaching the foramen rotundum, but other methods by Gerster, Luecke, and others of going from the side of the cheek, cutting the malar bone and the zygoma, and working in the narrow fossa from the side, have been tried. They are apt to be more bloody and perhaps less certain of exact feeling of the foramen.

The simplifying of dressings and attainment of primary union in the wounds now possible make certain valuable modifications of the operation practicable, which I have adopted in three cases. The best point is the small skin incision, which leaves a small scar. One inch and a quarter, either horizontally, vertically, or

obliquely, over the infra-orbital foramen gives ample room for operating. I have found a gouge better than a trephine for penetrating the antrum, front and back. A narrow, forked, blunt instrument to straddle the nerve and assist in dragging it down into the antrum saves it from laceration. No bleeding occurs that is not readily checked by sponge-pressure, even the sharp welling-up that occurs when the nerve and its companion vessel are cut. The dressing of the wound is of special importance, and the most perfect result is obtained by packing iodoform gauze lightly into the antrum, the end of a long strip being folded into a small pad to be placed deep in the wound against the foramen rotundum and the rest lightly added on top, and allowed to keep the wound apart on the cheek. After thirty-six or forty-eight hours this gauze is entirely removed and the wound sutured with care. The anæsthesia of the cheek allows of secondary suturing without pain to the patient. What little exudation may follow this dressing is retained and needs no drainage, primary union invariably resulting if the dressing is made with care. The depressed scar becomes flattened after a few weeks.

[The narrative of three exceedingly interesting and striking cases treated by Carnochan's operation with complete success, are not reproduced here for want of space.]

The three cases in which I have operated afford corroborative proof of the value of deep nerve resection in facial neuralgia. The resection or section of the anterior portion of the infra-orbital is of little use, and, as Brodie and others found, practically worthless, producing at best in a few cases a temporary relief, and in most no relief at all. Langenbeck's clever and attractive operation on the anterior portion of the nerve is a marked improvement over the simple section of the foramen. In a most intractable case under Dr. Seguin's care in 1881 he did Langenbeck's delicate procedure with relief for some months, but on the pain recurring—with all its former fury—he referred the man to Dr. Weir, who operated by Carnochan's method through the antrum, removing the posterior part of the nerve to the foramen rotundum and destroying Meckel's ganglion. The man remained perfectly cured when last seen, three years later. The inferior dental nerve is much more easily removed. I operated on March 8th on a lady referred to me by Dr. W. C. Campbell, for neuralgia of the right inferior maxillary nerve of two years' duration. I made a one-inch incision only, parallel with the edge of the jaw, and near its angle. On reaching the bone, I chiseled a long furrow so as to expose the nerve in its canal, and resected an inch of it. The wound closed by primary union. Anæsthesia of the anterior half of the lower lip ensued, but the pain continued for two or three days, when it entirely disappeared and has not returned.—*N. Y. Medical Journal, Aug.* 3, 1889, *p.* 121.

ORGANS OF CIRCULATION.

49.—ON THE CAUSES OF VARICOSE VEINS.

By William H. Bennett, F.R.C.S., Examiner in Anat. R.C.S.Eng. Surgeon to St. George's Hospital, London.

Foremost amongst the causes commonly spoken of as producing varicose veins are constipation and pregnancy; the latter, acting either alone or, as often happens, in combination with the former, accounting almost entirely for the large excess of cases of general varicosity seen in females. It is, however, important to realise that most of the so-called originating causes are in reality only causes which determine either the increase of the disease or of certain symptoms connected with it, and are not necessarily associated in any way with its real origin. The only obvious originating causes of general varicosity in the lower limbs appear to be the following:—*a.* Obliteration of a large vein following upon (1) the formation of thrombus, such as may occur in typhoid fever, certain forms of gout and other affections, or (2) injury, of which five instances have come under my notice, all being cases of fracture (one of the pelvis, two of the thigh, two of the leg). *b.* Local pressure, such as that produced by tumours or fæcal accumulations, the latter being limited for all practical purposes to the left limb, and being, in my mind, of doubtful value as a cause. *c.* Pressure of a long column of blood may, in the case of the long saphena, placed as it is outside all accessory muscular support, no doubt account for the fulness and slight elongation, hardly amounting to real varicosity, which is commonly seen in that vein amongst subjects who follow occupations necessitating long standing; but in the exaggerated varix, which is not uncommon in this vessel, some other cause must exist, since it occurs indifferently in all classes of individuals, and quite independently at times of continuous standing. It is, however, obvious that in a large number of cases, especially those affecting the right limb, varix occurs without any such obvious cause. The question therefore arises as to whether a limb in which the venous apparatus was originally perfect becomes varicose till late in life, excepting as the result of some obvious cause of the kind alluded to. Personally the more I see of this affection, the more I incline to the belief that a large proportion of these varicosities originate in congenital defects in the venous apparatus, which in some patients are distinctly hereditary. If this be the case, it would naturally be more easily demonstrated in instances of varicosity affecting the right side, which for all ordinary purposes may be assumed to be free from the influence of that doubtful originating cause, a loaded colon. A reference to my cases shows that the percentage of cases on the right side with a distinct hereditary history

is about equal in the two sexes—viz., rather more than 50 per cent. That the disease must—sometimes, at all events—depend upon peculiarity in the veins themselves seems probable from the way in which severe varicosity develops in men who are robust in all other respects, and who do not suffer from constipation or other condition in the least degree likely to produce the affection. Further, the disease affects all classes, rich and poor, with curious impartiality; it occurs in the active and sedentary, in the weak and strong, in the short as well as the tall, and is to a great extent independent of occupation. Again, the difference in the behaviour of the veins of the two limbs when these are subjected to precisely the same conditions is sometimes remarkable, for it is occasionally found that under these circumstances varicosity will develop in one limb only, leaving the other unaffected, either entirely or until a much later period in life. The best illustration of this is seen in varicosity arising apparently from the local constriction produced by the use of garters, in which the disease may be confined to one side, perhaps the right. I hardly see how the occurrence of such cases can be explained otherwise than by assuming that some inherent defect or abnormality exists in the venous apparatus. I have been unable to connect the *occupation* of the patient in any definite degree with the actual production of this disease, excepting in certain cases, already alluded to, in which the long saphena was involved; but some occupations which entail long standing, exposure to great heat, or repeated slight injury, undoubtedly tend to increase the varicosity or cause complications such as thrombus, ulcer, eczema, and œdema. The influence of *stature* is interesting but vague. As a rule, the veins seem to be affected in nearly equal proportions in the tall and short, though general varicosity, without much affection of the saphena or other purely subcutaneous veins, is more commonly seen in short than tall subjects; on the other hand, cases in which the disease is more or less limited to the saphena are not often seen in any but tall patients. The results of local constrictions from external sources (e.g., the use of garters) have been referred to incidentally, and although I believe more importance than necessary has been attributed to these local constrictions in the production of the disease, they have without doubt a tendency to cause a rapid increase in the varicosity, and may give rise to painful complications. It is, of course, difficult to obtain precise information from females as to these probable causes in consequence of the constant association of pregnancy and constipation, the former predominating when the disease affects both limbs, and constipation when the left side only is involved.

A careful consideration of the cases tabulated and many others seen in hospital and private practice, in addition to dissections, into the details of which I need not enter now seems to me to render the following conclusions reasonable. 1. That discounting the influence

of pregnancy, the tendency to the development of varicose veins in the lower limbs is greater in men than in women. 2. That the disease for the most part arises from congenital and often hereditary defect or other abnormality in the venous apparatus, there being no evidence to show that a vein originally perfect (excepting perhaps the long saphena) ever becomes varicose before middle age, in the absence of such obvious causes as those previously referred to. 3. That two distinct classes of the disease exist: one beginning in the deep veins, and subsequently involving the superficial; the other affecting the superficial veins only, usually the long saphena and its radicles, and being confined almost entirely to tall subjects. 4. That the large mass of varicose veins in the lower part of the thigh, often associated with a globular varix at the saphenous opening, may in many cases, although apparently connected with the long saphena, be independent of it, being fed for the most part by veins coming through the fascia from the deeper parts of the limb, a point worthy of consideration in the treatment of these cases, as I propose to show in a future lecture.—*Lancet, June* 1, 1889, *p.* 1073.

50.—ON THE RADICAL TREATMENT OF VARICOSE VEINS.

By William H. Bennett, F.R.C.S., Examiner in Anat. R.C.S.Eng. Surgeon to St. George's Hospital, London.

In varicosity of the lower limbs the treatment by operation must of necessity be applicable to a comparatively small number only of the cases of this affection which come under the care of the ordinary practitioner, since, as I have often pointed out, the varicose veins are, in the majority of instances, so easily managed, with or without the aid of some of the various appliances to which I have before now called your attention, that the radical method, although quite justifiable, is generally not desired by the patients. Nevertheless, there occurs both in hospital and private practice a fair number of cases in which so much benefit can be afforded by this radical treatment that the surgeon may with confidence recommend the operation, which may, I fully believe, be practised without any risk worth serious mention if a due regard be paid to surgical cleanliness and some small technical details. Further, even if it be conceded for a moment that there is associated with the treatment some slight risk, the advantages gained in discreetly selected cases altogether outweigh any possible danger connected with the operation. As a general rule, the question of the radical treatment does not present itself in cases of varicosity limited to the leg, in consequence of the extreme ease with which the affected veins are managed when they do not extend above the knee: so that the symptoms which from time to time arise are not, if proper care be taken, of a sufficiently serious kind to lead a patient to submit to the discomfort of an operation. It is also necessary to bear in

mind that *in the leg*, excepting in certain cases, the operation very rarely entirely removes the necessity for wearing some kind of support, although in many cases the use of appliances may be made more tolerable. In varix involving both the leg and thigh the matter is altogether different. The wearing above the knee of an apparatus of almost any kind, if it be effectual, is in most instances so inconvenient and troublesome, that patients will not infrequently submit with alacrity to any treatment which offers a reasonable prospect of relief from the intolerable nuisance at times connected with the use of such appliances. It is satisfactory to know, therefore, that by a simple operation, practically devoid of danger in any healthy subject, it is easy to remove in many of these cases all necessity for wearing any apparatus above the knee—an inestimable boon, especially with those to whom expense is an object and time of importance. Apart, however, from the question of the relief from the necessity for the use of the appliances in these cases, it is found, as a matter of experience, that many of the discomforts arising in varix of the leg are either entirely due to, or much increased by, the coexistence of varicose veins above the knee; and, further, that these discomforts are susceptible of great modification in many instances, and in a few can be completely removed, by the proper treatment of the affected veins of the thigh, especially when the disease involves more particularly the long saphena vein, or is associated with a circumscribed varix at the saphenous opening.

Operations applicable.—Setting aside the various subcutaneous methods, which I do not propose to consider, as they may now be said to have entirely given place to the open method in the hands of most surgeons, the operations for the radical treatment of varicose veins may be divided into three kinds: (1) Those which aim at mere obliteration of some of the affected veins at one or more points; (2) those which produce a more extensive alteration, in cases of general varix of the limb, by the removal of large portions of the dilated vessels; and (3) those which in cases of local varicosity effect a "cure" by the removal of the whole disease. Technically these operations, the first step in all of which is the formal exposure of the vein or veins by dissection, may be arranged in the four following classes.

A. The application, at one or more points, of a single ligature around a vein, thus obtaining as many centres of obliteration as may seem desirable in any given case, and so diverting to some extent the current of the circulation, producing at the same time an alteration in the incidence of pressure in different parts of the limb. This proceeding, which approaches the ordinary subcutaneous method more nearly than any other of the open operations, but is more certain in its result, is suitable in a large class of cases of extensive general varicosity associated with one or more of the following conditions: (1) Intolerance of the use of appliances; (2)

distress from excessive distension of the dilated vessels; (3) threatened bursting of thinned veins from over-distension; and (4) the coexistence with the varicose condition of intractable ulcers, eczema, and the like.

B. The division of a vein or veins between two ligatures. This operation is applicable to the same class of cases as the foregoing, but is much superior to it, as not only is absolute certainty of obliteration ensured at the points of ligature, but, in consequence of the section of the veins, a certain amount of retraction of the divided vessels also occurs, a very important fact, since it gives entire relief to all pain and inconvenience which may be caused by the dragging, upon the parts above, of the heavy mass of full veins below. Hence the relief which follows this operation is certainly, as a rule, much greater than that obtained from the mere ligature of the vessels without division.

C. The formal removal by dissection of large portions of exaggerated varicosities in general varix. All the ends obtainable by the two previous operations are better and more completely effected by this proceeding, which is, of course, also especially adapted for the complete cure of local varix of any kind, single or multiple cysts, solid tumours the result of ancient thrombi, phleboliths, &c.

D. The ligature of veins around large areas of exaggerated varix in general cases, or in local varicosities, with a view to so interrupting the blood supply as to cause a shrinking of the varicose mass. I have ceased to practise this form of operation (1) on account of its uncertainty, and (2) because, while it is more uncertain, it is not less dangerous than the formal removal of the varix by dissection.

Details of the operations.—The strictest precautions as to surgical cleanliness must of course be observed in all cases, and on no account should the packing of the part in a wet carbonic dressing for at least four hours before the operation be omitted, the limb having been previously cleansed with ether and soap. In the mere application of a ligature, as in operation *A*, the vein is simply exposed through a small incision, and isolated by gently insinuating an aneurysm needle or eyed probe beneath it, by which a ligature is carried round the vessel. This ligature is ultimately tied tightly, and its ends of course cut short. In operation *B* the vein is exposed for an inch and a half, more or less, and two ligatures applied as before, with an interval of an inch or thereabouts between them. The intervening portion of the vessel is then divided with scalpel or scissors, care being taken that the vein is not caught up by forceps, a point which at first sight may appear trivial, but which is in reality of some consequence, since a bruise of the vein may result in extensive thrombus, a complication to be avoided, as it may prove serious, especially if by any chance the attempts to keep the wound aseptic should fail. No sutures are necessary in

either of these operations, the careful application of the antiseptic dressing being all that is necessary. In the removal by dissection (operation C) of large areas of exaggerated varix in general cases, or isolated varicose masses, &c., a single or crucial incision is made over the mass; the cellular tissue having been laid open and the veins in some part exposed, the whole varix may be quickly laid bare by running a director over and around the dilated vessels; an occasional touch with the scalpel is necessary, but the use of the knife is best avoided as much as possible, as there is less danger of wounding any of the veins—a mishap which, although not in any way serious, gives rise to some bleeding and prolongs the operation. As many as possible of the veins running into the varix are now divided one by one between double ligatures; the mass is then drawn out and removed, after any radicles which may have escaped division in the earlier part of the operation have been ligatured and divided. The complete exposure of the varix, at the commencement of this proceeding, is much facilitated by throwing the veins into full relief by tying a band around the limb above sufficiently tightly to arrest the venous circulation to some extent. The margins of the wound, which are sometimes extremely thin, should be treated with as much delicacy as possible, being held, if necessary, by the fingers rather than forceps, to avoid bruising. The edges come together accurately, and are most conveniently sutured with chromic catgut, after all oozing from the surfaces has entirely ceased. The antiseptic dressing is finally applied, great care being taken to make equable and rather firm pressure, in order to secure early adhesion between the under surface of the skin flaps and the deeper parts—a point of much consequence, as the integrity of the skin flaps, when very thin, without doubt solely depends upon this early union between the parts mentioned. As a rule, the wound requires very little attention after the first dressing, which need not generally be changed for a week, by which time the healing will have probably been completed. I have seen in my cases neither fever, suppuration, nor untoward symptom. There is, however, one objection which a captious critic might make in connection with this operation—viz., that the final healing of the wound is sometimes rather tardy. Personally, I attach but little importance to this objection, since, so far as I have seen, even in the slowest cases the parts are sufficiently sound at the end of ten days, or at the most a fortnight, to allow the patient to get about. One word as to the best kind of ligature is necessary. Chromic catgut is, on the whole, the most suitable material for all these operations, excepting the first, in which, as it is important that the ligature should not dissolve too soon, tendon is probably better.

In order to properly estimate the value of the radical method of treating varicose veins, and to ascertain the class of case which is likely to derive the greatest benefit from one of the several opera-

tions mentioned, it is convenient to consider the treatment as (1) curative and (2) palliative.

I. *Curative.*—The cases in which a "cure" in the true sense of the word (i.e., entire obliteration or removal of the disease) can be effected must necessarily be somewhat limited in number, since they comprise the following conditions only: (*a*) Local and circumscribed varix, (*b*) single or multiple cystic dilatations, (*c*) solid tumours the result of ancient thrombi, or (*d*) ordinary phleboliths.

II. *Palliative.*—Cases in which the radical treatment may be applied for palliative purposes are fairly numerous, and although in none of these can anything more than partial relief be, with absolute justice, claimed as the result of the method, because the actual disease is not entirely removed or completely obliterated, still the effect on the symptoms in many instances is so marked that, for all ordinary purposes, a cure may be said to be effected; indeed, the benefit derived by some patients is so great that it is difficult to persuade them that an actual cure, in the true sense, has not been produced. Amongst the conditions wherein the relief obtainable from operation may be safely anticipated to be sufficient to justify the recommendation of this treatment, is that of general varicosity associated with some local excess of varix, or with distinct cystic dilatations. In many cases of extensive varicosity the whole of the serious discomfort experienced depends upon one or both of these conditions, which may be either in themselves painful, or by their presence interfere with the proper management of the varicose limb. Again, in similar cases, cysts, by repeated distension, increase until they are not only painful, but become so thin that they are liable to burst, and may so give rise to serious bleeding. The removal of these local conditions, when practicable, either completely or in part, is clearly not only expedient, but in some instances really necessary. Even in cases of general varicosity, in which the disease appears to be uniformly distributed, when there is much pain, the relief obtained by the excision of portions of the affected veins in different parts of the limb is quite remarkable. I have myself seen an amount of relief which was almost incredible obtained by the removal of considerable lengths of diseased veins from each leg and thigh in a case of double general varix. As to the permanence of the relief in these palliated cases, it is difficult to give any very positive opinion, on account of the impossibility, as a rule, especially in hospital practice, of keeping the patients sufficiently long under observation to form a thoroughly reliable judgment on this matter. That the relief, however, lasts for long periods is certain. I occasionally see, for example, patients upon whom I operated five years ago, in which the discomfort then relieved has shown no indication of recurrence. In the cases mentioned under the head of the "curative" treatment, I believe the cure to be quite permanent.—*Lancet, June* 22, 1889, *p.* 1232.

ORGANS OF RESPIRATION.

51.—REMARKS ON THE OPERATION OF THYROTOMY IN THE TREATMENT OF LARYNGEAL CANCER.

By Sir William Stokes, M.D., Professor of Surgery at the Royal College of Surgeons, Ireland.

Of the surgical questions which await time and experience for their satisfactory settlement, the one in reference to the merits of thyrotomy in the treatment of laryngeal cancer stands in a foremost place. In connection with this topic two distinct and hostile camps are occupied by authorities, some advocating exclusively an endo-laryngeal method for the removal of malignant laryngeal neoplasms, while others stoutly maintain that such a procedure is only a "sort of artistic possibility of little practical value." Between these two extremes of opinion the principles that should guide us and the practice we should adopt in such cases will doubtless be established and the mists which contribute so largely to maintain the existing unfortunate chaos of surgical opinion on the question ultimately be satisfactorily cleared away. In cases of malignant growth thyrotomy, Dr. F. Semon has observed, "should not be attempted," and this very decided opinion is practically endorsed by Gottstein, who has stated that "extirpation of malignant tumours by means of thyrotomy has not, judging by the results so far obtained, been satisfactory. In twenty cases collected by Bruns, in two death occurred soon after the operation; in one case only was there no local recurrence, but in this case death occurred twenty-two months after from cancer affecting the suprarenal capsules and the left kidney. In the remaining eighteen cases local recurrence took place, in some after two or three weeks, and only in one was there an interval of a year and a half. Recovery of voice occurred in no instance."

[After referring to the statistics of Sir Morell Mackenzie and Mr. A. Durham, Sir W. Stokes says the results prove unquestionably that many of the alleged dangers of the operation are purely imaginary, and not more hazardous than many accepted and frequently performed surgical operations.]

As every such case is, irrespective of the result obtained, of great importance in determining the question as to the merits of the operation, more particularly in connection with malignant and cancerous disease, I deem the following case especially worthy of record, as it will, I think, largely aid in determining surgical opinion on the subject.

S. J., aged 50, by occupation a butler, was admitted into the Meath Hospital, under my care, on April 25th, 1889, having been recommended to me by Dr. J. Murphy, of Dublin. The patient was suffering from aphonia, great dyspnœa, and dysphagia, any

solid food being especially liable to give rise to extreme laryngeal irritation. The patient was a tall, sallow-complexioned, dark-haired individual, and had always led a steady, temperate life. He never had syphilis, and there was no evidence of there ever having been any hereditary cancerous diathesis. The patient was in a condition of extreme marasmus, owing doubtless to insufficient nutrition during the previous six months. He attributed the trouble to a severe cold with "sore throat," after which he became aphonic. He suffered no pain in his throat, nor did efforts to talk give rise to any. Attempts at deglutition of either solid or fluid food was accompanied with much distress, owing to some of it invariably passing into the air-passages, which always gave rise to violent spasmodic cough. There was no evidence of pulmonary, cardiac, or renal disease. There was no albumen, phosphatic or lithic acid deposit in the urine. The latter was in every respect in a satisfactory condition. On examination of the throat, the larynx externally appeared abnormally prominent. There was no involvement of the submaxillary or sublingual glands but at the edge of the sterno-cleido mastoid posterior, close to the os hyoides, there was one small enlarged gland. The laryngoscopic examinations, made by my colleague, Dr. P. C. Smyly, revealed a large lobulated apparently vascular growth, situated mainly on the right side of the larynx, above and completely concealing the vocal cords. The extent of the attachment of the growth could not be accurately estimated, nor could it be ascertained if the cartilages were involved in the disease; but it was observed that, having regard to the freedom with which the tumour moved up and down during the act of respiration, the probabilities were that there was no involvement of the cartilages, and that the growth was probably not sessile but pedunculated, and could be excised without removing any of the cartilages. The condition of things found at the time of the operation, which was subsequently performed by me, verified in a remarkable degree the accuracy of the diagnosis, in making which I derived so much assistance from Dr. Smyly. The structures on the left side of the larynx were found perfectly healthy.

On May 10th, the dyspnœa having distinctly increased during the two days previously, and the patient's condition from this cause as well as from the dysphagia being very critical, I performed a preliminary tracheotomy about three-quarters of an inch below the cricoid cartilage, and employed for the operation a Worthington's scalpel and grooved steel director, which I found signally facilitated the speedy introduction of a cannula, and in a fortnight subsequently, when the patient had become quite accustomed to the presence of the instrument, I substituted for it a Trendelenburg's apparatus for the twofold purpose of preventing any blood entering the air passages during the performance of thyrotomy, and through which the inhalation of an anæsthetic might also be effected. Some

irritation was at first induced by Trendelenburg's tube, but this soon subsided. The patient was then brought into the operating theatre and chloroform administered. No sickness or any other trouble connected with the anæsthetic interfered with the performance of the operation.

I commenced by making an incision accurately in the mesial line, commencing at the os hyoides and carrying it down to half an inch below the cricoid cartilage. All bleeding points having been carefully secured, I opened the crico-thyroid membranes, intending to divide the thyroid alæ from below upwards with a strong pair of straight scissors. Owing, however, to the cartilages being ossified, this was not found feasible, and to effect the division it was necessary to employ a small-sized straight bone forceps. In this way an opening extending from the thyro-hyoid space down to the cricoid cartilage, and involving the latter, was made. The thyroid alæ were now separated with blunt hook retractors and held aside.

A good view was now obtained into the interior of the larynx, and I observed with much satisfaction that the disease had not involved either of the true vocal cords. The new growth lay well above them, being attached by a pedicle to the right ala of the thyroid cartilage nearer its upper than its lower margin. On passing my right index finger into the larynx, to satisfy myself as to the size and nature of the attachment of the growth, I found that there were three of them—one apparently fully the size of a walnut and the other two about the size of kidney beans. The larger tumour was attached by a somewhat narrow pedicle, and I anticipated, therefore, little difficulty in its removal. Accordingly, with a pair of strong curved scissors I commenced to detach the pedicle.

This I did, and then passed my finger into the larynx, hoping to be able to hook it out, as it were, through the opening I had made. I did not, however, succeed in this—a circumstance which caused me some anxiety, especially as at this juncture there was very smart hemorrhage coming from the situation where the attachment of the tumour had been severed. I then passed a curved forceps into the larynx, hoping that with it I might be able to seize and remove the detached growth. This expedient did not succeed either, and I was beginning to be apprehensive as to a possible failure attending the removal of the growth, fearing that possibly it had passed upwards into the mouth and been then swallowed by the patient. My apprehensions, however, were set at rest by my colleague, Mr. Hepburn, informing me that, while I was selecting another forceps for the removal of the tumour, it was discharged from the mouth during an effort to get rid of a quantity of mixed blood, saliva, and mucus.

The two smaller growths were situated on the posterior wall of the larynx, and these differed from the first growth removed, not

only as regards size but also from being sessile. They were detached by means of a Volkmann's scoop. On their removal there was a good deal of hemorrhage, which, however, was checked mainly by sponge pressure. Two or three small vessels at the edge of the wound were ligatured and the divided larynx brought together by six points of interrupted carbolised silk suture. The edges of the skin wound were likewise held in apposition by similar sutures, but of finer silk. Sal alembroth dressings were then applied and the patient removed to his ward.

It is unnecessary to enter into details as regards the progress of the patient after the operation. The dysphagia at once disappeared, and throughout his convalescence his condition remained perfectly afebrile and aseptic. The tracheotomy tube was removed on the tenth day after the operation, and on the sixteenth day he returned to his work. Having regard to the extent of the disease which was present, and the suspicious enlargement at the side of his neck, the probabilities certainly are that sooner or later there will be a recurrence of the disease; but still, when one considers the extremely critical condition the patient was in at the time of the operation, the result as materially prolonging his life must be looked upon as eminently satisfactory.

It has been stated that, when our manipulative dexterity in performing intra-laryngeal operations is in advance of what it is at present, thyrotomy is likely to be altogether superseded. This may possibly prove true as regards benign growths; but it is hard to conceive how it could hold good as regards tumours of a malignant type. In the removal of these in other situations, there is undoubtedly a consensus of opinion among surgeons that to augment the chances of future immunity from recurrence, a very thorough and complete removal of the disease and its neighbouring tissue is indispensable, and no exception to this established fact can exist in the case of malignant laryngeal growths. It is hard, in truth, to understand how they can be so efficiently and radically treated as is necessary, by any form of snare, forceps, or cautery, no matter how great the dexterity of the operator is, or how ingeniously devised the appliances he uses may be. What I think we are more justified in anticipating, is the knowledge of how to recognise accurately the disease while it is limited and localised, and still further by more perfect antisepticism to diminish the risks which are ever present when such operations as laryngo-fissure, partial and complete excision of the larynx, are performed.

The facts I have briefly detailed in the above case, taken with the results obtained by Billroth, Durham, Von Bergmann, Rauchfuss, Köhler, Schuchardt, and others, must go far to dissipate among surgeons the feelings of hostility to the operation to which such an impulse has been given by the antagonistic opinions of many eminent laryngologists.—*British Med. Journal, Sept.* 14, *p.* 593.

52.—METHOD OF USING BONE PLATES IN INTESTINAL SURGERY, AS SUGGESTED BY PROFESSOR SENN.

By Frederic B. Jessett, F.R.C.S., Surgeon to the Cancer Hospital, Brompton.

[The following account of the method of using and preparing the "bone-plates" introduced by Professor Senn, of Milwaukee, is taken from Mr. Jessett's report upon Intestinal Surgery, presented to the Scientific Grants Committee of the British Medical Association. (See abstract of Dr. Senn's paper at p. 247 of this volume.)]

Gastro-enterostomy and jejuno-ileostomy are performed identically in the same way by means of decalcified bone plates such as that shown in Fig. 1. It may be well, before describing the different steps of the operation, to state how these bone plates are prepared.

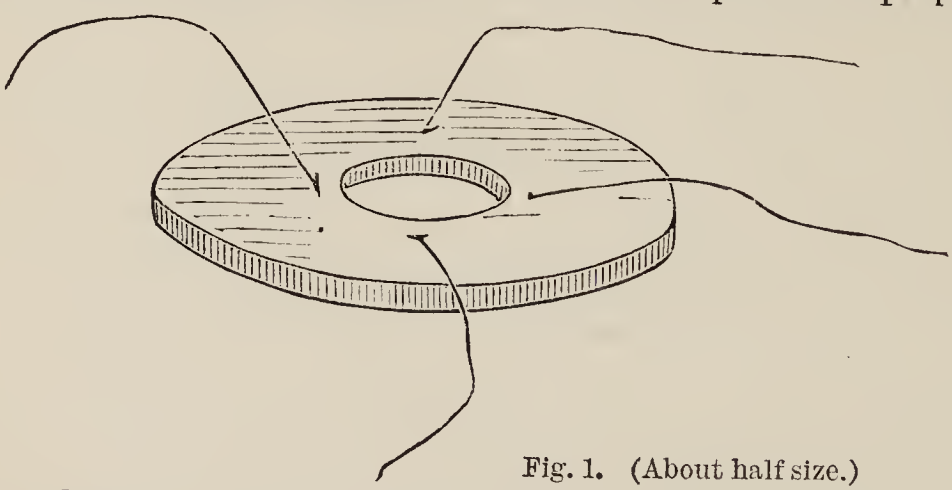


Fig. 1. (About half size.)

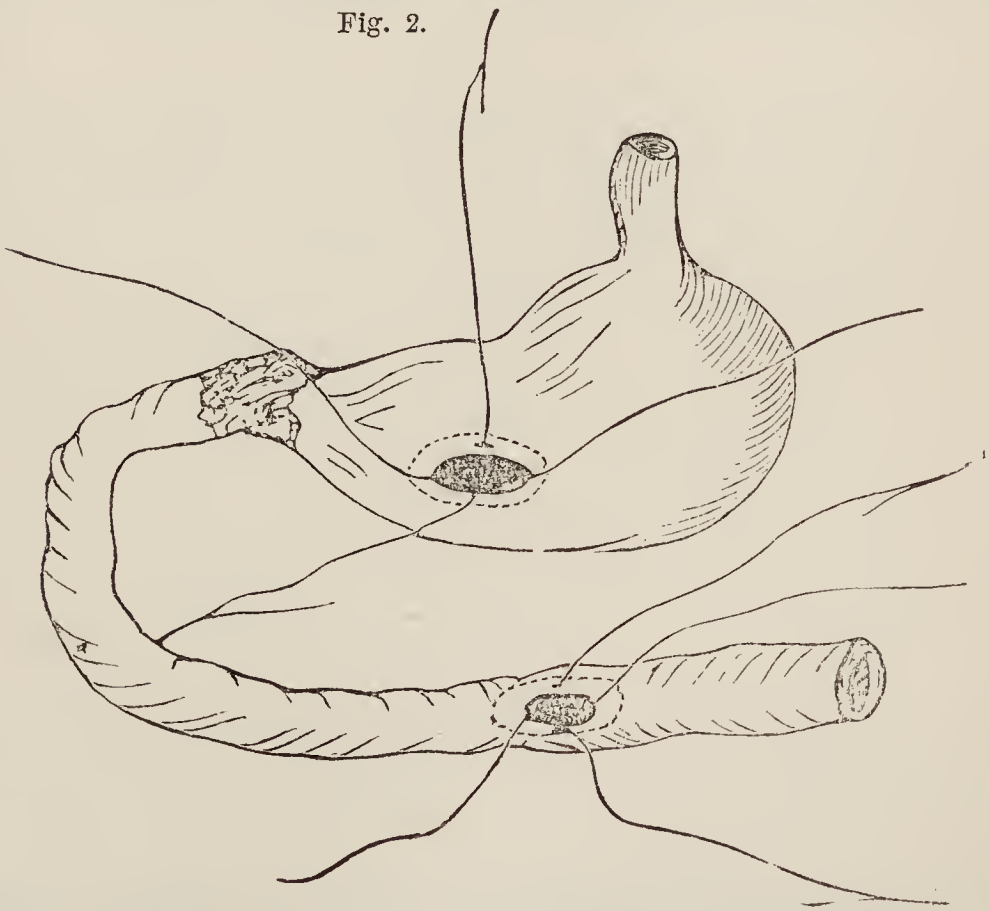
The plates are, in the first instance, cut of the requisite size. I have had the ones I used made of uniform dimensions, namely, $2\frac{1}{2}$ inches long by 1 inch wide and $\frac{1}{4}$ inch thick. When decalcified these plates can be easily cut to the size required at the time of the operation. They should have an oval opening in the centre $\frac{3}{4}$ inch long by $\frac{1}{2}$ inch in width. To decalcify them let them be placed in a 10 per cent. solution of strong hydrochloric acid, and allow them to remain in this until they are quite soft and pliable; the acid solution requires to be changed about every second day, and usually the plates are thoroughly decalcified in the course of a week. They are then washed, and allowed to lie in plain water for some hours to get rid of the superfluous acid, and finally they are preserved in rectified spirit until required for use, when they should be placed in a 20 per cent. solution of carbolic acid for an hour before using them. In preparing these plates for operative purposes, four holes have to be drilled in them close to the edge of the central oval opening, namely, one on either side and one at each end. Through these openings four threads at

least 12 inches long of No. 1 chromicised catgut or Chinese silk, each armed with a fine sewing needle, are passed and fastened to a circular thread at the back, of the same material, which is formed so as to be a trifle larger than the oval opening. The plates being now ready for use are placed in a solution of carbolic acid.

Gastro-enterostomy.—In performing this operation, an opening some three inches in length is made in the middle line of the abdomen, between the ensiform cartilage and umbilicus, the omentum being pushed on one side; a piece of jejunum, as near to its origin as practicable, is drawn into the wound and held by an assistant; a portion of the stomach, about two inches from the greater curvature and as near to the pyloric end as possible, is also drawn into the wound. Two pieces of india-rubber tubing are next passed through the mesentery, about four inches apart, one on either side of the portion of gut to be opened, and, after this has been emptied of its contents by gently squeezing it, these india-rubber tubes are fastened sufficiently tightly to prevent the contents passing. This end might be also attained by the use of Makin's or some other clamp, or, indeed, by an assistant's thumb and fingers, but I prefer the india-rubber tube as described.

The portion of the stomach and intestine being now well outside of the wound, are packed round with sponges to catch any of their

Fig. 2.



contents that might escape on their being opened. An opening

about an inch in length is now made in a longitudinal direction into the convex surface of the jejunum, and one of the bone plates slipped in; the needles of the two lateral threads are then passed through all the coats of the bowel close to the cut edge, and unthreaded, the two end threads being brought out at either end of the wound in the gut; these threads are then given to an assistant to hold, while the surgeon makes another incision into the stomach parallel to the greater curvature; the other bone plate is then passed into this viscus through the incision, the needles of the lateral threads are passed through all the coats of the stomach, the end threads being, as in the jejunum, brought out through the wound. (Fig. 2.)

The two openings are next accurately adapted to each other, and the bone plates held firmly in position by an assistant while the surgeon ties the corresponding threads of either plate tightly. The lower lateral threads should be tied first, then the end ones, and finally the upper lateral. Should the ends of the bone plates be found to tilt it is wise to insert a Lembert suture at each end, but this is not always necessary. The jejunum being now firmly fixed to the stomach, the parts are dropped back into the abdominal cavity, the toilet of the omentum attended to, and the abdominal wound closed in the usual manner.

This operation can be performed easily in from fifteen to twenty minutes, instead of an hour and a half to two hours, as is usual under the system at present practised. In two cases in which Mr. V. Horsley and I performed gastro-enterostomy on dogs, the operation was accomplished with great ease and rapidity, and, in both cases, the dogs made an uninterrupted recovery, never having displayed the slightest pain or inconvenience. These specimens showed the operation in both cases was perfect.

Jejuno-ileostomy.—If it is not desired to remove any portion of the diseased intestine, but simply to form an artificial communication between a portion of intestine above an obstruction and another portion below, the operation is conducted exactly in the same manner as that described for gastro-enterostomy. Should it, however, be deemed necessary to excise a portion of the gut, the operation will have to be modified somewhat. In this case, the intestine being drawn well out of the abdominal wound and gently squeezed at the seat of the operation, to empty it of its contents as far as possible, should be clamped, either by means of india-rubber bands or one of the numerous clamps devised for the purpose, about four inches on either side of the portion of diseased or injured bowel to be removed. Sponges should be carefully packed round the opening into the abdomen to prevent any fæcal matter that may escape from the divided intestine entering into the peritoneum, and the bowel cut directly across with scissors, and a V-shaped piece of mesentery also removed. All bleeding points

being secured with fine catgut ligatures, the two ends of each portion of bowel are to be invaginated into themselves, and, when invaginated to the extent of one inch, the serous and muscular coats of each are stitched together by means of a continuous catgut or Chinese silk suture. The two ends of the gut are next placed parallel to each other (Fig. 3), with their convex surfaces in

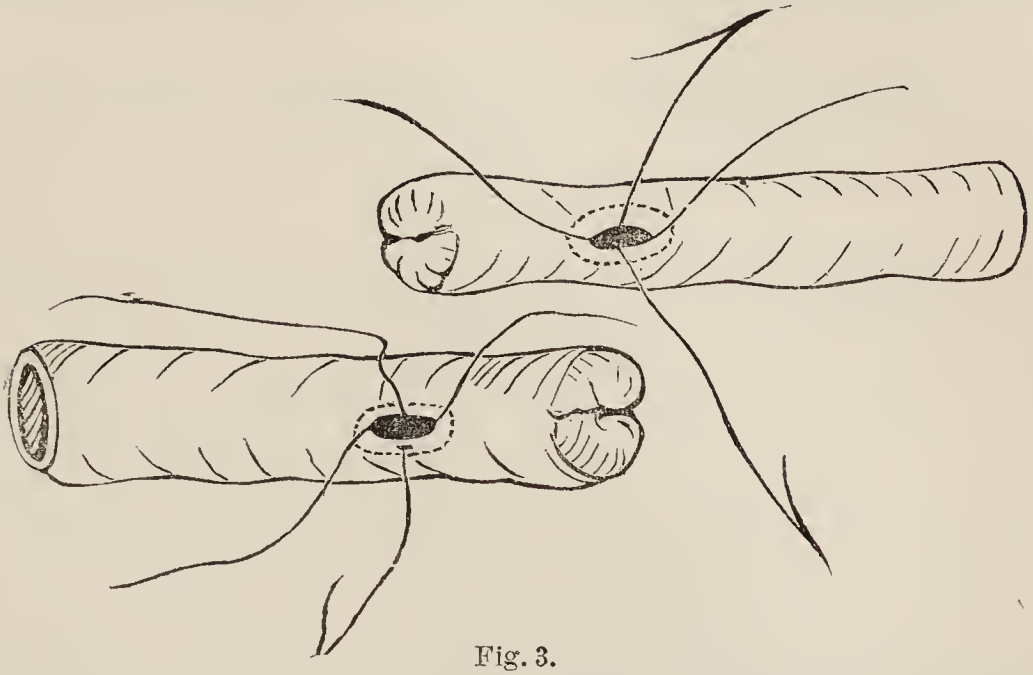


Fig. 3.

apposition. It is of importance to notice that the two portions of intestine are applied end on, so as not to interfere with the peristaltic action of the bowels. An opening about an inch long is made longitudinally in each portion of the gut on its convex surface, and the bone plates passed in and fastened in the same manner as already described for gastro-enterostomy. The divided mesentery is united by a few stitches of catgut. This operation can be easily performed in twenty minutes.

I have performed jejuno-ileostomy or ileo-ileostomy on dogs in six cases. In every case portions of intestine varying in length from three to twelve inches were removed; the two ends of the divided bowel were invaginated into themselves, and in five cases the convex surfaces of the intestines above and below the excised portion were brought into apposition by means of decalcified bone plates. All these dogs made an uninterrupted recovery, and never seemed to suffer the slightest pain or inconvenience from the operation.

At the *post-mortem* examination the omentum was found to be adherent to the bowel at the seat of operation. The two portions of intestine were united, and there existed a good and sufficient opening between them to allow of the contents of the bowel passing. In every case the dogs increased in weight after the operation.

The sixth case was operated on in a similar manner to that to be

directly described for ileo-colostomy—namely, by implantation of the proximal into the distal portion of the divided intestine. This dog unfortunately died on the third day, through the misfortune of one of the ligatures slipping from a vessel in the mesentery, hemorrhage resulting. There was no leakage at the point of union of the two portions of gut, which were united by plastic lymph.—*British Med. Journal, July* 27, 1889, *p.* 169.

53.—ON THE OPERATION OF PROCTECTOMY IN MALIGNANT DISEASE OF THE RECTUM.

By Thomas R. Jessop, F.R.C.S., Senior Surgeon to the Leeds General Infirmary.

[The three following articles form part of an address delivered at the opening of the section of Surgery at the Annual Meeting of the British Medical Association, 1889.]

With regard to proctectomy—an operation which, though sporadically performed in this country for many years, has only of late been forced into prominence by the persistence and the success of our German colleagues—I will make this observation at the outset that, based upon the local origin of cancer, it aims at the complete eradication of the disease, and therefore, if successful as an operation, not attended by an undue mortality on the one hand, or followed by detracting disadvantages on the other, it must take its stand as an established surgical procedure. I am not at all sure, indeed, that it may not be so considered already. The reports published from time to time encourage us in the belief that, with the perfecting of procedure, it only remains to determine in what cases proctectomy is or is not to be recommended. As yet my experience is small, hardly perhaps worth relating, my cases numbering no more than seven. Of these, one died as the immediate consequence of the operation. The patient was a poor curate, dejected by misfortune and poverty. The disease was extensive, occupying four-fifths of the circumference of the gut just within the anus, and reaching so high that the finger could not touch healthy mucous membrane beyond. Although nothing occurred during the operation to intensify shock, he never fairly rallied, but lingering on a few days with the aid of stimulants, he died without actually emerging from the primary collapse. The remaining six obtained a varying amount of relief. In the three most favourable the disease was situated in the posterior or lateral walls of the rectum above the sphincter, and well within reach of the finger; and these, at the time of writing, are all alive; one apparently well at the end of twenty-one months, and showing no signs of return or of much inconvenience; the second with an equally favourable record at the end of seventeen months; whilst the third, operated on nine months ago, has not been able to leave his room

owing to a speedy return of the disease, which has now invaded the pelvic tissues to such an extent as to threaten an early fatal termination. A fifth case, equally favourable with the former three, was that of a lady, upon the anterior surface of whose rectum was a deep hard-based carcinomatous ulcer, of the size of a florin. The vaginal mucous membrane could be moved upon the growth, so that I was able to dissect away the infiltrated structures and leave the vaginal canal intact. An untoward circumstance marred and interrupted the course of recovery I naturally looked for. The wound was dressed with undiluted salufer, and to the escharotic action of this powerful and useful antiseptic I attribute the subsequent perforation of the recto-vaginal wall, by the occurrence of which this patient's convalescence and ultimate good recovery was delayed. The present condition of this lady—thirteen months after the operation—is fairly satisfactory ; for, whilst there is no return of the disease, the small vaginal opening, now completely cicatrised, in no way interferes with the action of the sphincter, and permits only of an escape of fæces when from any cause the motion is not solid.

The two remaining operations were undertaken for the removal of disease situated at a higher level. In each there was a hard nodular ring completely encircling the bowel, through which the finger-tip could be made to pass, whilst the anal portion of the rectum to the extent of from two to three inches was unaffected. In both, without much difficulty, the whole of the new growth was removed. The first was an elderly male with a capacious pelvis, whose tissues were spare and relaxed. After removal of the ring I succeeded in approximating and suturing the divided edges of the mucous membrane. In the second, a stout middle-aged woman, Douglas's peritoneal pouch was extensively wounded, and through the opening the uterus and the small intestines were readily felt. Here I determined not to attempt any suturing, but to trust to unaided adaptation, free drainage being secured by the introduction of a large celluloid tube. Both cases recovered so as to leave for home, and both remained well when last heard of, five months in the one case and twenty-six weeks in the other having elapsed since the operation.

Of the seven cases, one, I have already said, died within a few days ; in another the disease rapidly returned ; and in a third, except that a small recto-vaginal opening permits of the occasional involuntary passage of flatus and fæces, a cure, at least of temporary duration, has been brought about ; whilst in the remaining four excellent immediate results have been obtained, and the conditions in each as regards defæcation and local suffering are almost all that can be desired, and are incomparably better than the most exceptional colotomy can effect. In addition to these advantages is the hope of a more or less prolonged immunity from the disease.

Results even such as these encourage us to hope that, with increased experience and a more accurate appreciation of the causes of danger and of failure, we shall find in proctectomy a valuable means of prolonging life and of mitigating suffering applicable to a considerable number of cases for which other measures offer at the best but imperfect palliation. We shall look to this discussion for the fruits of collective experience, and especially for guidance in the methods of procedure and in the perfecting of the details of the operation. I have not myself attempted hitherto the extirpation of cancer when beyond the reach of the finger as felt in an ordinary examination, and I shall, therefore, feel much interested in the experience of those who have removed neoplasms from the higher portions of the rectum. Neither have I in the male advised removal where the disease has been seated on the anterior wall of the rectum, as I have had reason to believe the operation might involve injury to the urethra, prostate, or bladder. The opening of the peritoneum in proctectomy, though by no means free from risk, is not, as we have seen, of necessity followed by serious consequences. On the other hand, a communication with the urethra or bladder could hardly fail to result in such inconveniences as would more than neutralise any benefit derived from the extirpation of the disease.

I will briefly allude to one or two points of interest and importance in the operation itself. With the patient placed in the lithotomy position, access to the disease may be obtained in one of two ways—either by widely expanding the sphincter by means of a modified Weiss's three-branched dilator, or by cutting from the rectum deeply down to the coccyx. The former plan may suffice in thin, wasted subjects, whilst in stout persons a full view of the interior of the rectum can only be brought about by a deep and extensive incision. With the ulcer or growth exposed to sight, an outline incision with the knife may be made to encircle it well outside its margin, and the removal may be completed with scissors, care being taken to include in the parts removed a considerable margin of healthy tissue. The arrest of hemorrhage is not usually attended with difficulty; but few vessels call for ligature, and venous bleeding is best put a stop to by the temporary insertion of a well-squeezed sponge. In some I have found it practicable to adjust the cut edges of the mucous membrane, but I have not observed that the care bestowed upon this point has been attended with compensatory advantages. In the greater number the wound has been left unclosed, care being taken to keep it cleansed by the free use of iodoform or other antiseptic, and patent by means of celluloid drainage tubes, so as to avoid accumulated secretions or concealed hemorrhage. Much of the success of the operation, I am convinced, depends upon the thorough cleansing of the wound not only at the time of operation, but during many subsequent days.

I have usually had the rectum washed out with some antiseptic solution every eight hours, and have followed this each time by the insertion of an iodoform suppository. By attention to details such as these, dangers are averted and the healing process is much accelerated; and thus the operation may be expected to take rank with those for the removal of cancer in other situations. And yet it will be generally conceded, I think, that in the existing state of our knowledge and experience, proctectomy is an operation of limited application, unsuited to more than a minority of the cases presented to us. When the disease is well within reach of the fingers, and confined to the posterior or lateral portions of the rectum, or if, situated anteriorly, it has not invaded the tissues outside the muscular wall of the bowel, and when also the external sphincter can be preserved in functional activity, I have no hesitation in recommending its adoption; but in those cases in which the disease has originated beyond the reach of the finger, or, having commenced lower down, has crept up to a higher level, we must still, I think, trust to those other less radical measures which till recently constituted our only resource.—*British Medical Journal, Aug.* 24, 1889, *p.* 406.

54.—THE NATURAL HISTORY OF CANCER OF THE RECTUM.

By Thomas R. Jessop, F.R.C.S., Leeds.

Of 102 patients, I find that seventeen died of complete obstruction, unrelieved by any operative interference, whilst fifteen others, similarly obstructed, underwent the operation of left lumbar colotomy. From this it would appear that about 31·4 per cent. of all cases of cancer of the rectum would die of obstruction if left to Nature. Of the remainder, seventy in number, three died from hemorrhage, five are said to have died of acute septicæmia, two from implication of other organs—the peritoneum and abdominal lymphatics in one, the vagina, uterus, and bladder in the other. In nine the operation of left lumbar calotomy was performed, in the absence of complete obstruction, for the relief of local distress; whilst, in the remaining fifty-one, exactly one half of the whole number, death is attributed to "exhaustion;" and in several of these such complications are mentioned as "œdema of legs," "ascites," "urinary difficulties," implying doubtless extension of the disease to neighbouring organs and tissues.

At first it seems a little surprising to find that less than one in three, if unrelieved by operation of any kind, will die of obstruction. It must be borne in mind, however, that it is complete obstruction which is here referred to. More or less interference with the passage of the intestinal contents is met with in a much larger proportion of cases, in nearly every case indeed at some period of the disease; but it is an incomplete stoppage which may be got

over by ordinary measures, such as injections, the introduction of the finger, or of bougies, the use of laxatives, and the like, and which, though painful and exhausting, is not by any means the sole factor in causing death. It is a pregnant fact, and one worth dwelling upon, that in not one of the thirty-two obstructed cases above referred to, in which colotomy was imperatively called for, was the disease situated within easy reach of the finger; and in the majority it was quite beyond the touch, its position being diagnosed by other agencies, or inferred from the past and present history of the patient. I have for some time held, and have often given expression to the opinion, that in cancer of the lower half of the rectum we have not much fear of the occurrence of complete stoppage. I may now add with equal confidence that where the upper portions of the rectum are involved complete blockage is almost certain sooner or later to appear. This latter assertion would seem warranted by the results of the thirty-two cases I have quoted; and of the truth of the former I have several times met with most striking confirmation. The reasons for this difference in the effect of cancer as a cause of occlusion are doubtless to be found in the anatomical relations of the upper and lower portions; for whereas the rectum as it approaches the outlet becomes more closely applied to the sacrum and pelvic wall, in its superior portion it is comparatively free, and thus the contractile action of the colon above is exerted with effect in forcing the contents through a contracted ring when that ring is fixed and immovable; whereas when the narrowed portion is free, movable, and not attached as it is when seated in the upper portions of the rectum, the efforts of the bowel above succeed only in invaginating or otherwise displacing the growth, often so as to enable us to make a complete diagnosis by bringing the disease within reach of the finger, and fail altogether in effecting any onward movements of the contents.—*British Med. Journal, Aug.* 24, 1889, *p.* 407.

55.—ON THE OPERATION OF COLOTOMY FOR MALIGNANT DISEASE OF THE RECTUM.

By Thomas R. Jessop, F.R.C.S., Leeds.

If we are satisfied that we have to deal with a case of cancer situated in the upper movable part of the rectum, knowing that complete obstruction may of a certainty be looked for, we shall probably all agree that it is desirable to make an artificial anus in the colon above as soon at least as the first symptoms of impending blockage appear, and in time to anticipate those further changes upon which the mortality of colotomy so much depends. And I will here state my opinion that in these circumstances the ordinary left lumbar colotomy is to be preferred, not only because of the facility with which the distended bowel is reached, but

chiefly because the opening is made at a sufficient distance from the disease to ensure its being found in a healthy state, free alike from cancerous infiltration and from those ulcerative changes which are apt to occur on the distal side of a strictured canal. That an early operation is called for is abundantly shown by the fact that of fifteen cases operated on for complete obstruction, five died within the first week, two within three months, and the remaining eight lived an average of rather more than twelve months, including one who survived the operation twenty-two months. On the other hand, of the nine operated on when no symptoms of obstruction were present, the earliest death did not take place for upwards of two months, and the average of life throughout was a little over eleven months. And, again, reviewing a larger series, I find that out of fifty-four cases of colotomy taken from both my hospital and private notebook, performed for the relief of distress only, and not for obstruction, three only died during the first month, and in each of these there were some special circumstances, such as advanced age or great emaciation, to account for the early death. It is not in cases of complete obstruction or of threatened obstruction that any difficulty arises in the course to be pursued. When death is imminent and other means have failed to bring about relief, an opening somewhere and of some kind in the bowel for the exit of the pent-up excreta is obviously called for; and, as we have seen, the earlier that opening is made the more certainly will a lasting relief be obtained. And, following out the result of my observations, I would say that, given a diagnosis of cancer high up in the rectum—in the earlier stages, it is true, by no means always an easy matter—the duty of the surgeon would seem clear, viz., to recommend without delay the formation of an artificial anus.

There remain, however, still to be considered those cases of disease affecting the middle and lower portions of the rectum, to which excision is deemed inapplicable, and in which obstruction to any serious extent is not likely to happen. How are these to be dealt with? The propriety of recommending colotomy here must turn upon the answers to two questions—is the life of the patient prolonged by its adoption? are his remaining days made more tolerable? In order to answer these questions I have made inquiry into the life history of eighty-six patients, of whom fifty-two ran their course without operation, and thirty-four submitted at some stage or other of the disease to left lumbar colotomy. In this inquiry I have taken care, to exclude all doubtful cases, and I have limited it to such in my private practice as have within recent years come under my own personal observation, in order, as far as is possible in such an inquiry, to exclude elements of uncertainty. The average duration of life in those who were not operated on, reckoned from the date of the earliest symptoms complained of, was a little over seventeen months; whilst that of the thirty-four who underwent

colotomy was twenty-two and a half months. This gives an average extension of life in each case operated on of five and a half months. Again, the average duration of life in the thirty-four after the time of operation was fifty-three weeks, whilst in thirty-seven out of the fifty-two cases in which I have put on record in my notes the fact that I have recommended colotomy, and in which my advice was not taken, I find the average of life, reckoned from the time of my seeing them, reached to a little over thirty-four weeks, thus giving an additional nineteen weeks of life to those who submitted to colotomy. It is not unfair, perhaps, to assume that the patients who consented to operation were suffering more severely, as a rule, than those who for some reason declined; and, if so, the duration of life in them had they refused colotomy would probably have shown a shorter average than in those who, suffering less severely, declined the surgeon's aid. Be that as it may, there is ample evidence in the foregoing facts to show that in recommending the formation of an artificial anus in the cases under consideration we are justified by the knowledge that by its means a substantial addition to our patients' lives may be procured.

It is, perhaps, worth remarking that the proportion of patients who have declined operation has increased during the last few years. I believe the cause of this is to be found in the fact that for some indefinable reason my faith in the value of colotomy had gradually waned; and we all know how much patients are influenced by the mental attitude of their advisers. On commencing this review of my own work and experience, I am free to confess it would have given me no surprise had the results turned out upon the whole unfavourable to colotomy. The actual results have had the effect of re-establishing, nay, of materially raising, in my mind the value of colotomy as a means of prolonging life in all sufferers from cancer in the rectum.

In the next place we have to consider how far the patient's physical condition is improved, to what extent his sufferings are alleviated by the operation. Bear in mind I am dealing only with cases in which there is no material obstruction to the passage of fæces, and which, on the other hand, are characterised by the distress and worry of frequent ineffectual evacuations, and by unceasing pain and discomfort, due in great measure to the presence of excreta in the rectum, and of more or less loss of control over its expulsion. The amount of relief to be obtained is to be measured by the extent to which suffering depends upon the presence of fæces and of their passage over the diseased surface. Complete relief is never obtained. A variable amount of pain and distress is inseparable from the condition itself. To this fact must be attributed the not infrequent expressions of disappointment which escape the lips of our colotomised patients. We have not here the comforting assurance of a respite from the inroads of the cancer

which comes of excision, or the obvious escape from actually impending death from complete obstruction. The mental relief obtained in the one case, the rescue from death, and the palpable physical improvement in the other, are absent here. However real the actual relief, it is never complete; and there is still the prescience of a lingering death. These militate, except in the most sanguine, against realisation of benefit received. The colotomised patient has not experienced the miseries of him who has declined operation. His own sufferings are not small; to speak to him of an escape from greater seems a mockery. The attendance upon dying patients who have willingly accepted every surgical aid at our command is not calculated to impress the surgeon even with an overwhelming sense of benefits conferred. It is probably from frequently witnessing the last weeks of these patients, who remain under observation more persistently after operation, that I had gradually come to question the advisability of opening the colon where life was not immediately imperilled. A careful and impartial comparison of their sufferings, however, in a series of patients, including some who had declined and some who had undergone operation, has convinced me of the great utility of colotomy, and has completely dispelled my doubt as to its alleviating power. The conclusions I have been able to draw are that, by its means, the continuous pain is lessened in severity; the desire to evacuate, almost constant, and very distressing where no operation is performed, disappears in some and is diminished in others; incontinence of fæces, a frequent source of anguish in rectal cases, though occasionally met with, is usually absent in the colotomised; and, finally, the motions are not only discharged with comparative ease, but, in the majority, are reduced to at the most two or three in the twenty-four hours.

Finally, there remains for consideration to determine what kind of artificial anus best supplies the needs of the patient, and obtains for him the nearest approach to a state of Nature. Till recently, one operation, that, namely, of left lumbar colotomy, practically held the field. Inguinal colotomy was here and there undertaken, and now and again there appeared a paper founded upon one or two examples, setting forth its advantages over the other proceeding; but it was not until the last two years, since Mr. Allingham, jun., read his paper on this subject in the Surgical Section at the Dublin Meeting, that hospital surgeons in general have taken up the question in earnest, and have put to the test the advantages claimed for this over the usual operation. I have not myself yet performed the inguinal operation in any case of cancer; but there are doubtless many gentlemen present who will give us their experiences, and so will enable us to form a judgment upon its merits.

I am bound to confess that, having opened the descending colon in the left loin 103 times, I find it in some respects an unsati-

factory operation. Now and again it is not unattended with difficulties; but I have never found these insurmountable. In stout persons it will sometimes be found that the bowel is in front of the anatomical line; in the thin and wasted, the empty gut may have dropped down, as it were, so as to form an attenuated cord by the side of the spine. In these cases the peritoneum may require to be opened; and in others an opening may be unintentionally made. With cleanliness and care in avoiding the introduction of putrescible material, there need be no fear of inserting the finger freely within the cavity of the abdomen in search of the truant bowel, and the accidental wound need not so much as interrupt the even tenour of the operation. It has happened to me more than once to have opened a tightly distended colon and the peritoneal cavity by the same incision, and to have become suddenly conscious of the accident only during a copious flow of liquid fæces over the entire wound; and yet I am not aware that any disastrous effects have ensued. The tightly distended bowels secure an accurate closure of the wound, and I have always taken care to second this by seizing the cut edge of the colon with forceps and dragging it to the surface. It is not on account of the difficulties we sometimes encounter, or of the accidents which cannot always be avoided, that I am dissatisfied with this long-established operation; neither is it because of the high mortality which undoubtedly attends it when undertaken for relief of complete obstruction, a mortality which I am prepared to show arises more from the circumstances preceding the operation than from the operation itself; but rather because of its failure in a number of instances to secure that complete diversion of the fæces which it is intended to bring about, and because of a tendency to a gradual stenosis and even closure of the opening, on the one hand, or of unmanageable prolapse of the bowel on the other, which in a not inconsiderable number of cases detracts materially from the comfort to be derived from a perfect operation.

It is claimed for inguinal colotomy that, when rightly performed, there is no possibility of fæces finding their way beyond the opening in the groin, that the removal of a portion of the free border and the kinking of the bowel secure a continued patency of the artificial anus, and that prolapse may be effectually prevented by the use of a properly constructed truss. If these claims should prove to be well founded—and the examples I have seen in London, in Leeds, and in Newcastle would seem to support them—the chief drawbacks of colotomy will have been removed. The lumbar opening will continue to be preferred when the disease is so high up as to render it uncertain if an inguinal opening will enable the bowel to be reached, and probably also in cases of great distension where an immediate opening for relief of obstruction is imperative. Not long ago a man, whose colon I had some months previously

opened, returned in a condition but little, if at all, improved by the operation, which had wholly failed to prevent the dribbling of fæces through the rectum, although the artificial opening had remained patent as at first. To his complete relief I performed the operation of colectomy. The colon, having been cleared from its attachment to the lumbar opening, was dragged outside and completely divided. Having then temporarily secured the upper end with an encircling ligature of silk, so as to prevent the escape of fæces, and given it in charge of an assistant, I first dealt with the lower portion, and finding it empty, I was able at once securely to close it by stitching with fine silk its invaginated wall in such manner as to oppose two serous surfaces throughout the entire circumference. Thus safeguarded against any back flow of its contents, the distal end of the bowel was dropped into the abdominal cavity. The upper open end was then stitched all round to the edges of the lumbar wound, and in this way the whole of the contents of the bowel were perforce discharged through the lumbar opening.

How far this operation may be safely undertaken as a primary proceeding we have not sufficient evidence to show. Should it prove on trial to be not more fatal than the ordinary method, it is clear that by its means we shall more completely accomplish the chief end we seek to attain—namely, the diversion of the intestinal contents through the loin, and the detaching of the diseased rectum from the alimentary canal. It has been proposed, indeed, and even, I believe, essayed to accomplish, the removal of the cancerous bowel through the lumbar or inguinal opening, and that such a procedure may, in exceptional instances, be warranted, I can well conceive; but for the present our choice of operation in cancer of the rectum would seem to lie between proctectomy as performed from the anal extremity on the one hand, and some form of artificial anus on the other.—*Brit. Med. Journal, Aug.* 24, *p.* 408.

56.—ON INGUINAL *VERSUS* LUMBAR COLOTOMY.

By W. Harrison Cripps, F.R.C.S., Assistant Surgeon to St. Bartholomew's Hospital, London.

[Mr. Cripps's paper contains tables of his cases of lumbar and inguinal colotomy which are not reproduced here. Of the fifteen consecutive cases of lumbar colotomy, 14 were for cancerous, and 1 for fibrous stricture of the rectum, and all save the latter recovered. Of the 22 consecutive cases of inguinal colotomy, all except one being for cancer of the rectum or sigmoid flexure, 21 recovered and 1 died. After some brief remarks upon the history of the operation and reference to statistical tables, he says:]

The object of this paper is not merely to vindicate colotomy as a surgical procedure, but rather to contrast the intra-peritoneal

operation in front with that of the extra-peritoneal in the lumbar region. I may at once state that, having had considerable experience of both methods, I have no hesitation in regarding the inguinal operation as greatly superior to the lumbar, indeed, so much so that I have practically discarded the latter operation.

The following appear to be some of the chief objections to lumbar colotomy: *First*, the space in which the operator has to work between the lower border of the last rib and the crest of the ilium is often extremely confined, so that he is to a great extent at the mercy of the anatomical accuracy of the course of the bowel, and even a slight deviation involves a difficult operation. Thus, in the search the subperitoneal fat becomes extensively bruised, and not infrequently the peritoneum inadvertently, or even unknowingly, opened. To this cause many of the deaths from lumbar colotomy are attributable. *Secondly*, it is not always easy to identify the bowel in the limited space. The longitudinal bands are sometimes impossible to recognise. From this cause numerous instances are recorded where the small intestine, the duodenum, or even stomach have been opened by mistake. *Thirdly*, in a fat or muscular patient, owing to the depth of the bowel, and its want of mobility, there is a difficulty in fixing it to the skin without undue tension. *Fourthly*, and certainly what is the gravest objection of all, is that if the colon happens to take an abnormal course, altogether avoiding the lumbar region, as so well described by Mr. Lockwood, the attempted operation completely fails. I have been fortunate in not having met with one of these abnormalities, but have been present on three occasions when the most skilful surgeons failed to find the colon, and in which subsequent post-mortem examinations proved the bowel to be quite inaccessible from the lumbar wound. *Lastly*, the position of the opening behind is inconvenient to the patient for purposes of cleanliness and for the adjustment of pads.

Inguinal colotomy meets all these objections. The space in front is practically unlimited, and thus allows of a thorough exposure of the part by a clean incision without the least damaging of the tissues. There can be no possibility of mistaking the small intestine or other structures for the colon, which from its longitudinal bands clearly marked, its convoluted surface. and its glandular epiploicæ, admits of absolute identification. Owing to the mobility of the sigmoid flexure, and the ease with which the skin can be depressed, there is little difficulty in fixing the bowel without undue tension on the stitches.

Abnormalities of the colon do not mean failure of the operation. If the bowel be not in its usual position, it is possible to make a thorough exploration of the abdomen and search for it.

Besides meeting the chief objections that can be raised to the lumbar operation, the inguinal method has in certain instances an

advantage entirely its own. This consists in using the first part of the operation as a means of verifying the diagnosis in obscure cases before the bowel is opened. For instance, an obstruction exists probably in the large intestine, or there may be a communication between the bowel and the bladder. An examination of the rectum has thrown no light as to the site of the lesion. In such a case the surgeon would hesitate at doing a lumbar colotomy, feeling that it might be useless as being below the seat of disease. In inguinal colotomy such a mistake could not occur, for the diagnosis as to the site of obstruction could be made certain before the bowel is actually opened.

Two objections have been especially urged against the inguinal opening; first, that it affords greater facilities for prolapse of the bowel; and, secondly, that it is unsuitable for urgent cases. In answering the first of these, it is not my experience that prolapse is more frequent from the one opening than from the other: moreover, by a little care in drawing down the bowel in the inguinal operation protrusion can to a great extent be guarded against. The second objection could only hold good in a certain number of cases, and I believe even in these the danger is more imaginary than real.

Doubtless it would be more prudent, when possible, after stitching the bowel to the skin, to allow a certain interval to take place before opening it in order to afford the peritoneum time to become sealed off. If the bowel be distended and vomiting present, there is no time for waiting, for the pressure thus caused would certainly burst the bowel away from the stitches.

Having now endeavoured to justify my reasons for preferring inguinal colotomy, I will give a few brief details of the operation:

The patient has a warm bath the night previous to the operation, the abdomen being thoroughly well cleansed with soap and water, and afterwards covered with a light antiseptic dressing. This is important, for, since the operation is usually undertaken for cancer of the rectum, the part is liable to become contaminated with the fetid discharge. I make my incision rather higher than most operators. The branches of the epigastric artery are thus avoided, and there is subsequently less pressure on the wound than when lower down. As a guide I take an imaginary line from the anterior superior spine to the umbilicus; the incision, two inches and a half long, crosses this at right angles, an inch and a half from the superior spine. Half the cut is above and half below the imaginary line.

In making the incision, the skin should be drawn a little inwards, so as to make the opening somewhat valvular. The peritoneum being reached, it is pinched up by fine forceps and an opening made sufficient to admit the finger. The intestines being protected by the finger, the peritoneum is divided by scissors to

nearly the full length of the cutaneous incision. The colon may now at once show itself, and can easily be recognised by its longitudinal bands, its glandulæ epiploicæ, and by its regular convoluted surface. In about a third of my cases the large intestine presented at once; in the others either the small intestine, omentum, or mesentery first appeared. If any of these latter present, they must be pushed back, and the colon sought for by the finger. Sometimes it can be detected by the hard scybalous masses within it, or it can be traced up after passing the finger into the pelvis and feeling for it as it crosses the brim.

The colon being found, a loop of it is drawn into the wound. In order to avoid the prolapse which is likely to occur if loose folds of the sigmoid flexure remain immediately above the opening, I gentle draw out as much loose bowel as will readily come, passing it in again at the lower angle as it is drawn out from above. In this way, after passing through one's fingers an amount varying from one to several inches, no more will come. Two provisional ligatures of stout silk are passed through the longitudinal muscular band opposite the mesenteric attachment. These provisional ligatures, the ends of which are left long, help to steady the bowel during its subsequent stitching to the skin, and, moreover, are useful as guides when the bowel is ultimately opened. They should be about two inches apart.

The bowel is now temporarily returned into the cavity. With a pair of fine forceps the parietal peritoneum is picked up, and attached to the skin on each side of the incision, the muscular coats of the abdominal wall not being included. Four sutures of fine Chinese silk are sufficient, two on each side, an inch and a half apart.

The bowel is again drawn out, and fixed to the skin and parietal peritoneum by seven or eight fine ligatures on each side, the last suture at each angle going across from one side to the other. The bowel should be so attached as to have two-thirds of its circumference external to the sutures. By turning the bowel slightly over, the lower longitudinal band can be clearly seen, and it is best to pass the sutures for the lower side through this, since it is a strong portion of the gut. The upper longitudinal band through which the provisional ligatures have already been passed, is seen in the middle line of the wound. The bowel being now turned downwards, the opposite line of sutures are inserted close to its mesenteric attachment. No longitudinal band can, however, here be seen. The sutures, of the finest Chinese silk, are passed by small, partly curved needles, the needle passing through the skin one-eighth of an inch from the margin, then through the parietal layer of the peritoneum, and, lastly, partly through the muscular coat of the bowel, great care being taken to avoid perforating the mucous membrane. It is easier to pass all the threads before tying them up.

The wound should be most carefully and gently cleaned; the threads can then be all tied with moderate tightness. If the case is urgent, the bowel may now be opened; if not, a piece of green protective is put over it, a necessary precaution to prevent the granulations adhering to the gauze. The whole is covered with an antiseptic dressing, an additional thick pad being placed over the site of the wound. A broad flannel bandage is then wound firmly around the abdomen, so as to ensure considerable pressure. This is a most important precaution, for, should vomiting occur, the bowel is liable to burst away from the stitches. I also insist on the nurse sitting by the patient, with directions to press her hand firmly over the wound should sickness occur. When the patient becomes sensible, he can do this for himself. The wound is best dressed on the following day, to make sure that nothing has been misplaced.

If all goes well the dressings may be reapplied, and the bowel not opened till the fifth or sixth day. The bowel being insensible, no anæsthetic is required. It will usually be found covered with a layer of lymph of surprising thickness. The provisional ligatures which have been left in will be found a useful guide, the bowel being opened to the full length between them. The superfluous flaps on either side are trimmed off with scissors to the level of the skin. In doing this one or two vessels require to be tied.

All ligatures may be safely removed by the ninth day, or earlier if there is redness around them. Firm pressure with a pad and bandage will be required for some time later.

The question as to the date when the bowel should be opened is an important one. In urgent cases, as already mentioned, I should not hesitate to open it at once. On the other hand, if there is no vomiting or constitutional symptoms it may be advantageously left to the sixth day. The patient, however, requires to be very carefully watched. If the abdomen becomes distended with wind, if pain is felt, or, above all, should vomiting come on, the bowel should be immediately opened.

The wound varies much in different cases in its way of healing. In no inconsiderable proportion the union takes place between the skin and the bowel by first intention. In other instances, after a few days, the bowel, together with the parietal peritoneum to which it has become adherent, falls away from the skin, and sinks below the level of the muscular parietes.

This want of primary union depends on two causes, the one being due to the stitches being too numerous and too tight, so that the skin is too much strangulated, the other to the too early opening of the bowel. With reference to this last, it is interesting to observe the effect that antiseptic protection has on the effused lymph. This is thrown out in a considerable quantity, and quickly covers the exposed bowel and edges of the wound with a thick

layer. So long as this is aseptic there is no sign of redness or inflammation at the line of junction, and, in a few days, it will have so far developed as to effect a permanent union between the bowel and the skin. On the other hand, when an early opening of the bowel necessitates the abandonment of the antiseptic treatment, the lymph already formed melts away, a red line appears at the margin of the skin, and primary union frequently fails.

In some of my cases, in which the wound ultimately healed by granulation, there was considerable contraction. This commences about the fourth week, and, if untreated, in the course of a few weeks so narrows the opening as scarcely to admit the finger. The narrowing is doubtless due to the contraction of the new fibrous tissue formed from the granulations. It is difficult, however, to explain why in some cases, although the wound healed by granulation, there was no subsequent contraction.

The contraction is a troublesome complication, but, if dealt with early, can be effectually remedied. So soon as this tendency to undue narrowing is observed, a little spring dilator should be employed.

The subsequent inconvenience arising from the colotomy opening varies much in different cases. To suppose that a patient after the operation is in a miserable plight, with a constant fæcal discharge from the opening, is a delusion. It is true that, if the opening be too small, or allowed unduly to contract, the advantages of the operation are in a great measure lost, and constant dribbling occurs from the wound. If, however, care be taken to make and maintain the opening of sufficient size, the motion generally passes once a day, and there is a fair amount of control over the new anus.

Different varieties of trusses have been devised for covering the opening, but I doubt whether anything answers better than a pad and flannel bandage. A piece of lint three inches square, smeared with simple ointment, should be placed over the opening. Above this a small pad of boracic wool, or one of Gamgee's sponges, may be applied, the whole being covered with a large flat pad of cotton-wool, protected with gutta-percha tissue. The pads may be kept in position by a few turns of a wide flannel bandage, using a perineal strap if necessary.

It is not within the province of this paper to discuss the propriety of colotomy as a method to be adopted in certain cases of rectal cancer, but I would venture to say that, after an unusual opportunity of observing the closing scenes of this disease, some in which the operation had been performed, others in which it had not been undertaken, there can be little doubt as to its value. It is not merely a means of prolonging life, but mitigates some of the most distressing symptoms, while it affords a permanent safeguard against the obstruction which too frequently complicates this terrible disorder. I trust, moreover, that as surgeons become more

familiar with inguinal colotomy, and as a larger experience is available for comparison, it will be found that the advantages of the method have not been overstated, and that it will afford what never could be claimed for the lumbar operation—an easy, certain, and comparatively safe means of treating advancing stricture or complete obstruction of the lower bowel.—*British Med. Journal, April* 6, 1889, *p.* 770.

57.—ON THE TREATMENT OF CANCER OF THE RECTUM BY EXCISION.

By W. Harrison Cripps, F.R.C.S., London.

In the treatment of cancer of the rectum by excision, the following are the chief points which require consideration: 1, class of case suitable for operation; 2, the immediate risk to life involved; 3, the amount of benefit to be expected; 4, the best method of operating.

Selection of Cases.—It requires much care to select cases of malignant rectal disease in which benefit is likely to result from its removal. Unfortunately, suitable cases are remarkably rare, for the symptoms are often overlooked or neglected until the disease has assumed uncontrollable proportions, or it may be that even from the first it is situated too high to admit of effectual operative interference. I do not think that it will be found that it is in more than 15 or 20 per cent. of all cases of rectal cancer that excision is practicable.

In selecting cases both constitutional and local conditions have to be considered. The age of the patient, the general strength, and the state of the urine materially influence the decision, for an operation, which in a middle-aged and comparatively healthy patient is one of small risk, becomes extremely hazardous in the aged and feeble. The abdomen, too, must be carefully examined to ascertain, if possible, that the abdominal viscera and lumbar glands are free from implication.

If the constitutional conditions appear favourable, the position and attachment of the growth itself next come under consideration. No operation should be undertaken unless there is a reasonable prospect of being able to make a thorough removal of the whole disease. Under ordinary circumstances the finger can explore to a distance of from four to five inches from the anus. If the finger can pass sufficiently beyond the disease to feel a healthy mucous membrane, so far as the height is concerned a satisfactory removal is possible. The next point to ascertain is whether the disease is still confined to the rectum or has passed beyond it into the surrounding tissues. If the ischio-rectal fossæ be invaded, or the lower part of the vaginal septum be implicated, an operation is not necessarily prevented, for in both these situations a thorough removal of the disease is practicable. If, however, the bladder, prostate, uterus,

or upper part of the vaginal septum be involved, it is practically impossible to make an efficient removal, and no operation should be undertaken.

It will be not infrequently found that the vaginal septum is implicated, and it is a difficult question to decide the extent of implication which would forbid an operation. If it be the lower half only, the vaginal wall, together with the rectum, can be removed. Indeed, in one of my cases where this was necessary the woman did remarkably well, and at present there has been no recurrence (nearly two years). On the other hand, if the disease has spread into the upper part of the septum, the operation becomes very difficult and hazardous, for the peritoneal membrane of Douglas's pouch is nearly sure to be drawn down and involved in the disease.

It can be generally ascertained by digital examination whether the growth is still confined to the bowel, or whether it has invaded the surrounding parts. In the former case the bowel will still be fairly mobile, while in the latter it is rigidly fixed and cannot be moved by the finger.

I may here refer to a curious condition not infrequently met with. On a hasty examination it may appear as if the disease were confined to the anterior or posterior wall only, while in reality it surrounds the bowel. The mistake arises from the tendency for that portion of the bowel in which the disease is situated to become invaginated from constant straining, so that there is a deep *cul-de-sac* of healthy bowel all round the growth. The finger passed into this *cul-de-sac* feels the growth lying in front or behind, as the case may be. Of course, with a little further examination the condition of things can be ascertained, and the orifice of the intussuscepted bowel, with the disease surrounding it, can be felt not unlike an os uteri projecting downwards into the bowel cavity.

It must be borne in mind that in these cases of invagination the origin of the disease is much higher up the bowel than would be supposed from the examination, and it is not improbable that a considerable fold of peritoneum has been drawn down by the growth in its descent. Should there be any doubt as to the height to which the disease extends, a second examination under an anæsthetic is advisable before deciding absolutely the question of an operation.

Risk to Life involved in the Operation.—One of the largest tables of collected cases is that published by Kelsey, of New York. Out of 140 cases there collected 22 died, as the direct result of the operation, giving a mortality of rather less than 16 per cent. This death-rate is undoubtedly high, the majority of deaths being due to peritonitis or cellulitis. In many of these cases the peritoneum or other important organs had been wounded, while in others the bowel had been drawn down and stitched to the skin. The danger

of opening the peritoneum would of course be much reduced by a more careful selection of cases. It cannot, however, always be avoided, and I find that it occurred four times in my operations. I consider that the risks of both peritonitis and cellulitis are greatly increased by the practice of drawing down and stitching the cut end of the bowel to the margin, for, owing to much bruised tissue, many ligatures, and the inevitable tension on the gut, primary union is most unlikely to occur. Until the stitches give way, matter and *debris* are pent up behind, and, decomposing, form a starting-point for cellulitis and peritonitis. That a lower rate of mortality can be obtained by a more careful selection of cases, and greater care in the after-treatment, is certain.

My own operations for excision of the rectum are 30 in number, in patients varying from 27 to 76 years of age. Of these 28 recovered, 2 died, giving a mortality of rather less than 7 per cent. One of my patients, a woman aged 59, died of erysipelas on the twelfth day, the other, an old man of 76, died from exhaustion on the twenty-third day. The operation must of course always be one of some danger, but, by the careful selection of cases on the lines already laid down, this is not great, and, considering the nature of the disease and the inevitable death which must follow when left alone, the risk is well worth incurring.

Probable Amount of Life to be Gained by the Operation.—The accompanying table gives the subsequent history of my 28 cases which recovered:—

Subsequent History of Cases that Recovered.

6	No reliable subsequent history.
10	Recurrence took place within one year.
4	Recurrence took place between first and third year.
1	Died without recurrence a year after operation.
1	No recurrence after eighteen months; not seen since.
6	No recurrence up to present date (1 after three months; 2 after nearly two
—	years; 1 after three years; 1 after four years, probably eight years; 1
28	after nine years).

The results cannot be said to be brilliant, but when we consider the character of the disease, and know by experience that no other form of treatment hitherto adopted affords the slightest hope of cure, they are by no means discouraging. Taking my own experience, together with that recorded in the practice of others, I think we have good ground for believing that from 10 to 15 per cent. of cases operated upon for rectal cancer will be cured, a percentage which compares not unfavourably with the results obtained by operations for malignant disease in other parts of the body. Moreover, should the operation fail to cure it offers a chance of prolonging life, and, at least, for a while, in comparative comfort.

One of the most distressing symptoms of rectal cancer, especially when situated low down near the anus, is the pain it occasions. Complete freedom from pain is the first and most marked result of the operation, and the patient will often state on the following

morning that a better night has been passed than for months previously. If the disease returns there appears to be less local pain than that caused by the original growth, a fact probably accounted for by the destruction of the peripheral nerve filaments at the site of the operation. The possibility of incontinence cannot be urged as a drawback to the operation, for, if the cancer be allowed to remain untouched, this is nearly sure to become a complication. Moreover, if care be taken to prevent contraction during the healing process the patient acquires nearly perfect control over the bowel, unless there be much diarrhœa or looseness.

The Best Method of Operating.—The patient is prepared by a table-spoonful of castor oil, administered not less than twenty-four hours previously, a hot bath the night before, and a warm water enema two hours before the operation. An anæsthetic being administered, the patient is arranged in the lithotomy position by Clover's crutch, the buttocks being well raised by means of a hard square pad beneath the sacrum. A strong sharp-pointed curved bistoury, guided by the finger or the speculum, is passed up the bowel, and then, by transfixion, is made to protrude through the skin on a level with the side of the coccyx, the whole of the intervening tissues, from this point to the anal margin, being cut through. If the incision be made with a clean sweep, and as near as possible in the middle line, the hemorrhage will not be great, and can be restrained by the pressure of a sponge. A crescentic incision is now made, extending from the margin of the first cut to a point in the middle line in front. This cut should be made boldly, and of a sufficient depth to extend well into the fat of the ischio-rectal fossa. If the disease is not too low down it should be made through the mucous membrane, so as not to interfere with the skin of the anal margin.

The forefinger thrust into this incision will readily separate the bowel from the surrounding tissue, except at the insertion of the levator ani, which should be divided with scissors. A piece of sponge thrust firmly into this cut, and held by an assistant, restrains any bleeding, while the opposite side is treated in a similar manner. The bleeding vessels should now be clamped on both sides. The anterior wall next requires to be separated by a careful dissection—a process which is much facilitated in the male by a full-sized sound in the bladder. When the dissection has been carried to a sufficient distance beyond the disease, the bowel is drawn down with a moderate amount of force by vulsellum forceps.

In my earlier operations I used the wire *écraseur* for cutting off the partially detached bowel. This always took time, and not infrequently, owing to a slipping of the wire, the section was made too close to the disease for safety, nor did it always succeed in preventing troublesome hemorrhage. I have now discarded the *écraseur*, cutting off the bowel with strong curved scissors, clamping all vessels as divided. I consider this a great improvement in the

operation; it saves much time at a critical period, ensures the excision being sufficiently free of the disease, and allows the bleeding to be dealt with in detail.

At this period in the operation it is not always possible to avoid opening the peritoneum. This accident has occurred to me four times. In three I was enabled, after carefully washing out the blood-clot, to bring the cut edges of the membrane together by fine sutures; in the fourth case this was not practicable, but by careful and frequent cleansing of the wound no harm resulted.

An attempt to draw down the cut edges of the bowel and stitch it to the anal margin, I believe, is a grave mistake; it prevents free discharge from the wound by forming spaces in which matter may collect and decompose. For the same reason I employ no plugs or internal dressing, except for the first thirty-six hours to restrain oozing. A piece of india-rubber tubing, five or six inches long, with a few holes at the end, is passed a little distance up the divided bowel. A square piece of lint, smeared with eucalyptus ointment, with a hole in the middle to let the tube through, is pressed gently well into the wound, and then the space between it and the tube is gently plugged round with iodoform wool, and the whole secured by a T bandage. The tube allows wind and blood to escape.

Thirty-six hours after the operation the cotton-wool plug is removed, leaving the lint still in contact with the wound. This is gently syringed with a little weak carbolic lotion. Twenty-four hours later the lint, which will be then found to be loosened, will come away with syringing. I generally put in no fresh dressing, but have the wound gently syringed every eight hours, then dried with absorbent wool, and powdered with iodoform.

As the wound heals the most important thing to guard against is its contraction. If neglected, this will lead to the most intractable stricture. If, at the time of the operation, it has been found possible to leave a strip of healthy mucous membrane extending down to the anus, the contraction will be far more manageable than if the whole circumference has been removed. I have hardly ever noticed the contraction commence before the third week, often not till much later. When once started it is very rapid in its progress.

The wound should be examined every day after a fortnight, and at once, on contraction being noticed, a full-sized conical bougie should be passed daily, and left in some three or four hours. If this plan be adopted, it will be found that by the time the wound is completely healed there will be no undue stricture. As a precautionary measure, however, patients should for at least a twelvemonth pass a conical bougie for themselves on alternate evenings.—*British Medical Journal, Oct.* 12, 1889, *p.* 806.

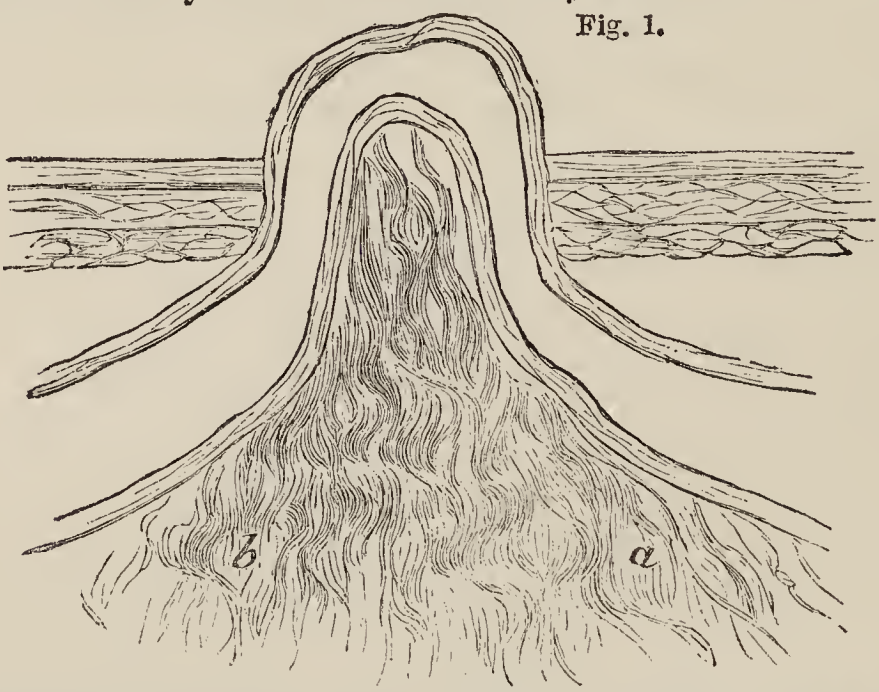
[See previous article; also articles on Inguinal Colotomy by Mr. Cripps and Mr. Chavasse in *Retrospect,* vol. xcix, pp. 311, 315.]

58.—AN IMPORTANT SUPPLEMENT TO THE OPERATION OF INGUINAL COLOTOMY.

By Herbert W. Allingham, F.R.C.S., Surg. to the Great Northern Hospital; Assistant Surgeon, St. Mark's Hospital for Fistula.

As I have now performed eighteen cases of inguinal colotomy, and have had the opportunity of watching the after-results of at least ten more, I have been able to observe the various points of the operation. I find that there is one condition in which operating in the iliac region may be disadvantageous, not to say distressful, in its results. In more than six out of the cases I have noticed that, after the patients have got up and have been able to go about, they have suffered from a large procidentia of the gut through the inguinal opening. This naturally occasions great discomfort, and necessitates the use of a strong truss to retain the intestine in its place, and whenever the bowels act this procidentia occurs. For a long time I pondered over the possible causes of this procidentia, and could not easily arrive at a satisfactory solution.

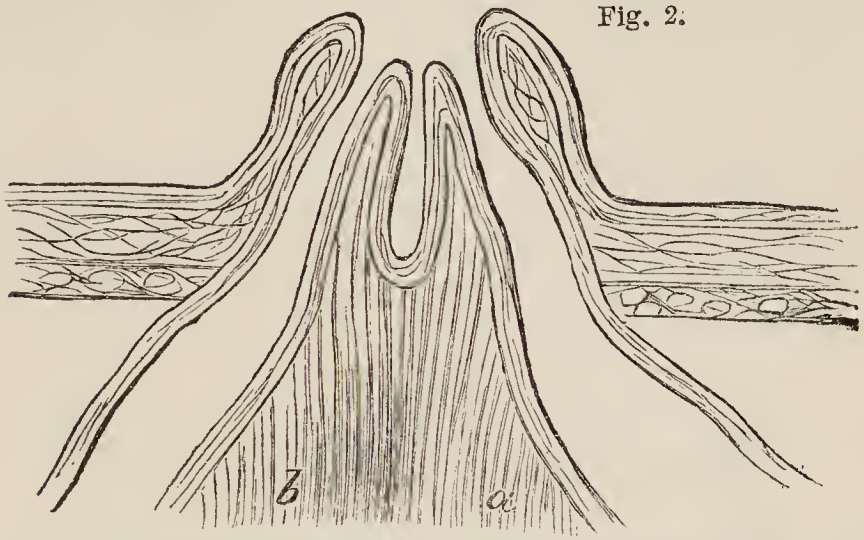
Fig. 1.



My first theory was that an excessive largeness of the incision in the abdominal wall had brought about this unlooked for and altogether undesirable effect. In some of my cases, therefore, I limited the incision in the abdominal wall to a length less than two inches, and found some variability in the results. In one or two cases the procidentia was partially obviated, in others it was as bad as ever. I had, then, to come to the conclusion that my theory had been erroneous, and that an increase or a decrease in the size of the incision could neither cause nor impede this protrusion of the gut. After thinking over the matter it occurred to me that the procidentia might have some relation to the length of the sigmoid

mesentery, which is sometimes of considerable dimensions, measuring at least four inches from the intestine to its attachment to the ilium. It may be seen from the accompanying Diagram (Fig. 1) that if the intestine be pulled out only to a limited extent so as to make a spur, but the mesentery at *a* and *b* be long, whenever the bowels act the lengthy mesentery will easily allow the gut to protrude. The resulting state will be that figured in Diagram 2, that is to say

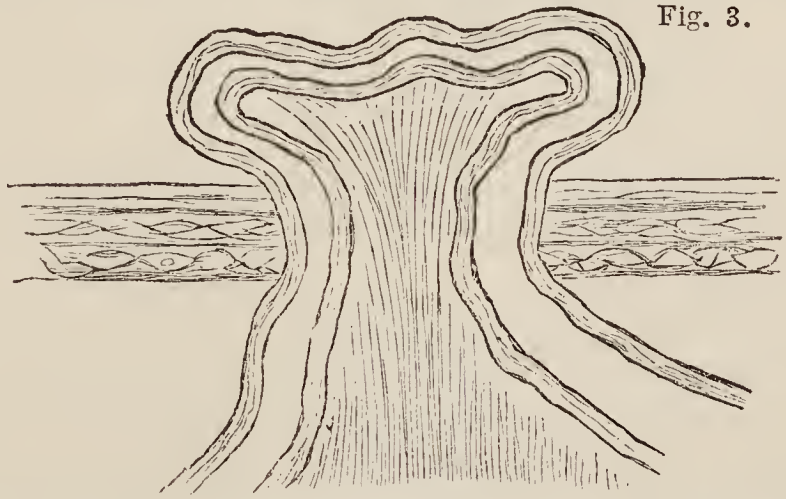
Fig. 2.



the intestine will be procidented until the mesentery at *a* and *b* has become taut.

I now saw what ought to be done in such cases. After I have performed the first part of the operation in the usual way by making an incision two inches in length, one inch internal to the antero-superior spine of the ilium, the parietal peritoneum being stitched to the skin, I pull out the gut by its lower end till no more can be made to protrude, and do the same to the upper end. The mesentery is now quite taut, and a large bunch of intestine, several inches in length, has been drawn through the opening, and is allowed to rest upon the abdomen. This is represented in Diagram 3.

Fig. 3.

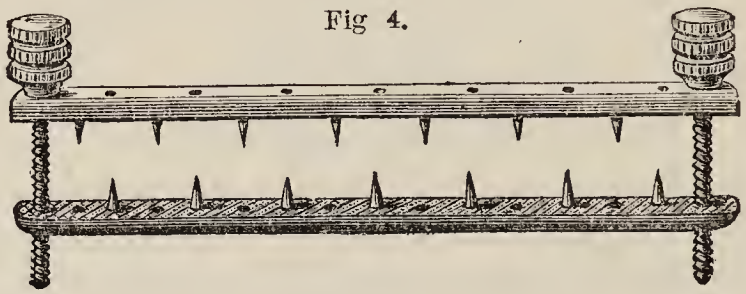


I then pass sutures through the mesentery, and several through

the muscular and serous coats of the bowel, so as to prevent it slipping back. The mesentery being perfectly taut, no procidentia is now possible.

From twelve hours to three days after this first operation, the time varying according to the condition of the patient and the urgency of the case, I remove the bunch of outdrawn and out-lying intestine. First of all I apply a clamp about an inch from the wound, and screw it up tightly. The clamp should be provided with spikes, as shown in Diagram 4, and in any case should have a firm and good grip. Unless this is seen to, when the intestine is cut off the clamp will slip off the stump, and serious hemorrhage will ensue. I then cut off all the portions of gut above the clamp, allowing the latter to remain firmly fixed for twelve hours—indeed, so long as any slackening of it causes bleeding. The amounts of intestine I removed in my cases measure from four to twelve inches, and weigh from three to six ounces.

Fig 4.



[Mr. Allingham then proceeds to relate five cases of inguinal colotomy to more fully illustrate the chief points in what may be called the second or supplementary operation, which we omit.]

A careful consideration of my cases will, I think, show that I have arrived at the correct explanation of procidentia following on the operation of inguinal colotomy. What is even more important is the manner of treating and of preventing this protrusion of the intestine. Yet I must candidly confess that this supplementary procedure of cutting away so large a quantity of the gut has materially increased the seriousness of the operation. The original method, if thoroughly and carefully performed, was in reality devoid of all danger, and is a comparatively trivial affair. Nevertheless, the exceeding discomfort occasioned by this possibly procidentia necessitates, I am inclined to think, a fair grappling with the circumstances.

The fact remains that if the original operation has succeeded, and the patient's life be likely to be prolonged for some considerable time, this descent of the intestine from the inguinal opening must be prevented. It should be remembered that the presence of a slack and lengthy mesentery is the *sine quâ non* of this supplementary procedure. If this long mesentery does exist, and no steps be taken to stay this procidentia, patients who have been operated

on for innocent stricture with ulceration of the rectum, probably combined with recto-vaginal or recto-vesical fistulæ, will be in the following condition: they have submitted to a palliative operation which may have been entirely successful in its main object, the relief of obstruction of the rectum; yet the resulting good has been accompanied by a resultant evil. Through the new opening in the groin the intestine protrudes, and is a source of constant trouble and discomfort. Some patients have told me that had they been aware of this possible *sequela*, they would never have consented to undergo inguinal colotomy. Their life is simply spoilt, and they are practically prevented from going about and mixing with the world at large in consequence of the constant protrusion of the mass. In cases of innocent stricture, where the patient is likely to have a considerable lease of life, I would strongly recommend the adoption of my supplementary procedure of entirely removing all of the intestine that can be drawn out of the inguinal opening.

On the other hand, in bad cases of malignant disease, when the patient is greatly exhausted, and has probably only a few months or perhaps weeks to live, I do not deem it wise or right to carry out any further operation. Be content with pulling the intestine well through the wound, and so make a good spur. If procidentia does ensue, it will not be of much moment, for the patient will be practically confined to the bed or sofa, and cannot lead that more or less active life in which his procidentia is so extremely discomforting. A few points in this operation require special mention:

Pain is experienced when cutting through the mesentery, but none whatever when cutting through or into the intestine proper; it is therefore wise to administer ether when removing the protruding portion of intestine.

The clamp for holding the intestine must be spiked and have a firm and certain grip. Unless these requisites are provided the clamp will slip and cause severe hemorrhage. Moreover, the clamp should not be applied too close to the wound, but should be placed about an inch distant. It should be kept on till no hemorrhage follows on any loosening or unscrewing. Unless all these particulars with regard to the clamp be conscientiously attended to, the great probability of severe hemorrhage will enormously increase the danger of this supplementary operation, and may, therefore, tend to militate against its adoption.

It is interesting to note the large amounts of intestine, ranging from $3\frac{1}{2}$ to 6 ounces in weight, that can be removed without any apparent detriment to the patient, risk of hemorrhage (unless care be taken) being the only serious drawback.

The same proceeding—in suitable cases—should be adopted when operating in the lumbar region, for there also I have observed this procidentia to occur.—*British Med. Journal, April* 27, 1889, *p.* 939.

59.—THE INDICATIONS FOR RADICAL CURE OF HERNIA.

By Charles Barrett Lockwood, F.R.C.S., Hunterian Professor R.C.S.; Surg. to Great Northern Hospital.

One of the objects of these lectures has been to ascertain, on anatomical and pathological grounds, the cases of hernia which afford a prospect of being benefited by proper curative operation. No operation can be called a cure which does not enable the patient to dispense with a truss, and no operation is likely to achieve this result, which has not for its aim: 1, the obliteration of the hernial sac without leaving a peritoneal depression; 2, the restoration of the valve form of the inguinal canal, and of the internal abdominal ring; 3, the restoration of the external abdominal ring. Operations which fail entirely in these particulars are often classed as curative operations, and being destined to fail, they bring the proper procedure into disrepute.

Lucas-Championnière gives the following list of cases of hernia, which seem especially marked out for curative operations. It includes irreducible herniæ; intractable herniæ; congenital herniæ with retained testicle; painful herniæ; herniæ associated with certain affections, such as asthma and emphysema; certain social considerations; and, lastly, herniæ liable to obstruction. Without waiting to discuss the expediency of operating under all of these various conditions, I propose to proceed with the anatomical and pathological questions which underlie them all, and upon which the promise of a permanent cure rests.

It may be said at once that congenital herniæ are the most suitable for curative operations. In these, as we have already seen, there is neither prolapse nor elongation of the mesentery, and the fault is a development deficiency in the abdominal wall.

But it must be added that operations for their cure are more likely to be successful after growth has ceased, because the mesentery is longer, and the bowels protrude further, during infancy, childhood, and adolescence. For instance, the length of the mesentery is a fifth of the length of the body during infancy; a seventh from the age of two years to ten; an eighth from ten to twenty; and afterwards a ninth; and the downward excursion of the intestines is in proportion. After the age of forty-five operations for the cure of congenital hernia are less to be commended, because, as the statistics show, that age seems to mark a turning-point in the history of hernia. At forty-five the relative percentage of right, left, and double herniæ is equal. Afterwards there is a marked increase in double herniæ; a circumstance which has just been attributed to prolapse of the mesentery, and the conditions which accompany it.

There is a further reason why infancy, childhood, and adolescence are not the best times for curative operations; because, during

those periods of life, there is a prospect of cure by other means; especially by the continuous wearing of a truss.

The above-mentioned disproportionate growth of the mesentery affords an explanation of this tendency towards recovery, and doubtless the cure is helped by an actual closure of the processus vaginalis. In order that this closure may take place, it is obvious that the hernia must be reduced and retained; and when this condition has been fulfilled, the normal closure of the processus vaginalis, which has only been delayed, is able to occur, and it is obvious that the obliteration will be aided by the pressure of a truss. Were it necessary, a great deal of evidence could be brought to show the frequency of this kind of cure, but it is so well recognised that it is needless to do so.

In the second of these lectures the acquired herniæ were divided into three classes: 1. Those in which there was neither prolapse nor elongation of the mesentery, and in which the fault was presumably in the abdominal wall. 2. Those in which there was simple prolapse of the mesentery. 3. Those in which there was complicated prolapse of the mesentery. None of these classes of acquired hernia afford such a prospect of cure by operation as the cases of congenital herniæ, but the prognosis is not the same in every class. Those in which there is neither prolapse nor elongation of the mesentery are by no means unfavourable. Only three cases have been recorded under this heading: two women, aged 24 and 46 years, and a man aged 56; and they all had femoral herniæ. Of course, definite conclusions cannot be drawn from such insufficient data, but I am inclined to think that those cases of femoral hernia which occur in young women, and during the child-bearing period belong to this class, and that the well-known relaxation of their pelvic peritoneum is the predisposing cause of their herniæ. I have operated upon several of this class for the relief of troubles connected with their herniæ, but London cases are so hard to trace that the ultimate results cannot be told. The last was operated upon more than six months ago, and I am informed by Mr. Blott, whose patient she was, that there is no return.

The second class of acquired herniæ—those with simple prolapse of the mesentery—are by no means fitted for curative operations performed upon the abdominal walls. Such procedures fail to deal with the cause of the disease, and seem doomed to failure. This applies with especial force to complicated prolapse of the mesentery, in which the pathological conditions are particularly unfavourable.

These two classes of acquired hernia are best dealt with by palliative measures, except under the most special circumstances.

The lecturer then discussed the operations for the cure of hernia, sometimes called radical cures, and said it was not incumbent upon the advocates of an operation to prove its perfection;

it was sufficient to show that the prospective advantages surpassed the dangers or disadvantages. Amongst the latter were included the questions of mortality, the danger of atrophy and sloughing of the testicle, and the danger of relapse. The main essentials of a curative operation were the obliteration of the serous sac and the prevention of a peritoneal depression where its mouth had been; the restoration of the inguinal rings; and, lastly, the restoration of the inguinal canal. Such operations were practised in cases of strangulated and non-strangulated hernia. Those performed in the last class were not well established in popular favour because they were often followed by ill results due mainly to want of knowledge of the pathology of the disease which they were intended to remedy, and a consequent failure in the discrimination of appropriate cases. The want of such knowledge had hitherto restricted the lecturer's operations to cases in which there was some strong reason for interference, such as adherent omentum or gut, inability to wear a truss, recurring attacks of obstruction, or because the patient wished to enter the army, navy, or police.

The mortality of the operation was small in some hands. Dr. Macewen had recorded eighty operations without a death; Mr. Mitchell Banks fifty-nine, with two deaths; Cohn, fifty-one, with one death, which was due to acute septicæmia; and, finally, it was said that Mr. Jacobson put the mortality at 3·6 per cent. This the lecturer thought a low estimate, since, although he himself had never had a death, he was himself aware of three fatalities which he believed had never been published, and there were doubtless others. A mortality of 5 per cent. was, perhaps, nearer the mark if all the cases could be ascertained; but there could be no doubt that, as the knowledge of the pathology of the septic and infective diseases advanced, and as a better selection of cases was achieved, this mortality would be greatly lessened.

Relapse after operations for the cure of hernia were partially due to an improper selection of cases. Congenital herniæ were the most likely to give a permanent result, but these should not be left until the hernia had distended the rings and obliterated the inguinal canal. The statistics of operations were quoted to show that success depended upon the age of the patients. Dr. Macewen's tables seemed to show that, out of fifty-one operations, only one man, a blacksmith, had subsequently to wear a pad, and that only whilst at work; his age was forty years, and his hernia was of long standing. The average age of Dr. Macewen's cures was $23\frac{1}{2}$ years. Mr. Banks traced seventy-seven of his cases, and forty-eight were quite sound, seventeen partial successes, and twelve complete failures. The average age of fifty-eight non-strangulated cases operated on by Mr. Banks was more than 36 years.

Doubtless the method of operating had an important effect upon

the cure, and many so-called radical cures did not at all deserve that illogical appellation. Although the statistics of operations were silent as to the subsequent conditions of the testicle, yet there was reason to believe that the vas deferens, spermatic artery, and spermatic veins were not infrequently injured to the extent of causing atrophy or even sloughing of the gland. This question was in need of further investigation.

The points in the details of curative operations which were deemed of importance were briefly alluded to, particular stress being laid upon the preparation of the instruments, sponges, dressings, and silk ligatures; also upon the preparation of the patient and assistants. In speaking of the treatment of the sac great stress was laid upon the importance of transfixion in the application of the ligature; fatal results from the neglect of this precaution were mentioned. The same principle ought also to be applied to the ligature of the omentum, when it required removal. When congenital hernia was complicated with retained testicle the gland had better be removed.—*Brit. Med. Jour., June* 29, *p.* 1461.

60.—ON A METHOD OF OPERATION FOR THE RADICAL CURE OF INGUINAL HERNIA.

By Charles McBurney, M.D., Surg. Roosevelt Hospital, New York.

[After discussing the principles upon which all operations for the radical cure of hernia must be based, Dr. McBurney goes on to describe his own method of procedure. The abstracts of reports of cases are here omitted. It will suffice to say that they fully bear out the author's conclusions as to the success of his operation.]

The most careful antiseptic precautions having been adopted, especially in reference to cleansing the skin of the pubic, scrotal, and inguinal regions, a free incision is made, beginning a little *outside* the situation of the internal ring, and extending a sufficient distance downward over the sac. The incision is rapidly deepened over the whole length of the canal, so as to freely expose its anterior wall, that is, the aponeurosis of the external oblique muscle. The superficial layers over the sac are now cleared away so as to plainly show the whole anterior wall of the canal; the concave border of the external ring and its two pillars are completely exposed in their whole length. The sac is still covered below the external ring by the external spermatic or intercolumnar fascia. This fascia is now opened, and, one blade of a blunt scissors being pushed under the edge of the external ring, the anterior wall is split completely up to, and a trifle beyond the outer border of the internal ring.

The deeper coverings of the sac are now dissected off, this dissection being often best and most rapidly accomplished with the fingers. If, now, the fascia transversalis is partially removed high up in the canal, it is quite easy to separate the spermatic cord from

the sac, and this, too, often in congenital hernia. If begun below the external ring this separation is often extremely difficult. The cord being now separated from the sac up to a point a little within the abdomen, the whole sac is dissected out and lifted up. In some cases, as in many congenital herniæ, this operation cannot be made, and then the sac must be cut away from the cord at each side of the latter. This serves to show that by this method the sac is completely exposed up to its very point of origin. At this stage, especially, the whole wound is thoroughly cleansed, and the hands of the operator and assistants washed. The sac is now invariably opened, and if intestinal contents are present these are reduced; if omentum is present it is very securely tied off with catgut, a large stump to prevent slipping of the ligature is left, and the rest cut away. The stump is pushed completely back into the cavity, adhesions being broken down or ligated if any are present.

The sac is now held up vertically from the internal ring, and the operator inserts one or two fingers through the neck and a little way into the peritoneal cavity. This is done to guard positively against the return of a piece of intestine or omentum into the sac during the application of the ligature. The first assistant then places the ligature of stout catgut or prepared silk about the neck at the very highest point, that is, on a level with the general peritoneum. The ligature is gently tightened on the operator's finger, and closed very tightly as the operator's finger is withdrawn. A pedicle, sufficient in size to prevent slipping of the ligature, is left, the rest of the sac being cut away In congenital herniæ this step is a little more troublesome, as one must often resort to sewing the neck carefully and smoothly.

There now remains a long wound which includes the whole length of the canal, and even the entire circumference of the internal ring. The posterior wall of this wound is formed by fascia transversalis in its inner part, and by peritoneum in its outer part. The peritoneum on its inner surface is smooth, and the sac completely obliterated. The upper wall of the wound is formed by the edges of skin, superficial fascia, external oblique aponeurosis, and conjoined tendon; the lower wall by skin, superficial fascia, and a strip of aponeurosis, or, practically, Poupart's ligament, including the outer pillar. My aim being to insure the formation of granulation from the very bottom of the wound to the surface, it is not sufficient to simply pack the wound. The packing could easily become displaced, and the deeper layers rapidly but feebly unite. Moreover, it is desirable to bring down the stretched and lax edge of the conjoined tendon. Stitches of stout silk or catgut are therefore placed as follows: From four to eight, according to the size of the wound, bind together the tissues which form the upper wall of the wound, that is, the conjoined tendon, the aponeurosis of the external oblique (including the inner pillar of

the external ring), and the skin. The skin is carefully and deeply inverted while each stitch is tied tightly. As many more sutures bind together at the lower wall the skin and Poupart's ligament, including at the lower part the outer pillar of the external ring. This suturing positively secures patency of the wound, and the formation of granulations from the bottom.

As thus arranged the wound would be unnecessarily wide, and now two or more heavy tension sutures are carried across the wound, which, when these are tied, is diminished to one-fifth or one-quarter of an inch in width. The tension sutures pass deeply through skin and superficial fascia, and are tied over pledgets of iodoform gauze to avoid ulceration. The wound is now carefully irrigated and dusted with iodoform throughout. Lastly, iodoform gauze is firmly packed through the entire length of the canal, particular care being necessary to see that, in packing at the outer angle, the whole circumference of the internal ring, including the stump of the sac, is covered by the packing. If this packing is not thoroughly done, the loose tissue in the canal becomes very œdematous in a few hours, and interferes with granulation formation.

The scrotal or labial wound is sewed up simply without packing, a drain being inserted at the lower end if necessary. This dressing is now covered with abundant masses of bichloride gauze and cotton, and the whole very firmly bound in place with bandages. Just beneath the bandage and surrounding the penis is placed a large square of thin rubber tissue, so that accidental soiling of the wound with urine may not occur. I have most of these patients empty the bladder through the catheter for some days after operation, in order to avoid soiling of the dressing and too much motion of the parts. In children I have thus far always succeeded in keeping the wounds aseptic by enclosing the whole dressing, including the thigh, in plaster-of-Paris. A child so dressed cannot turn in bed, and may be placed, by the aid of cushions, so that the stream of water is always directed away from the wound. In female children I thoroughly shellac the plaster as an additional precaution against urine. The dressing is not disturbed for five or six days, when, on removing it, the wound will be found to have begun to granulate. The packing is renewed in the same manner as at first placed, and changes are then made once in every four or six days. The time occupied in healing, so that a clean scar is formed, is usually from five to six weeks. The prone position for this length of time has seemed to me to be well spent; the scar becoming very strong. Certainly it is a small price to pay for the ability to get up from bed at the end of that time free from "the slavery of a truss," as one of my patients recently expressed it. None of my patients thus treated are allowed to wear a truss or support of any kind. If they were obliged to do that I should look upon the operation as very far from deserving the name of

"radical cure." Moreover, I regard the constant pressure of a truss upon the scar as positively injurious to the strength of the latter.

The advantages claimed for this method of operating are: 1. That it is the only method in which the sac is completely obliterated. 2. That the walls of the canal are very firmly united, throughout its whole length, by strong cicatricial tissue. 3. That the wound being open the risk of abscess and septic complications is reduced to a minimum. 4. That it is rapid, and applicable to every form of inguinal hernia.

I have now done this operation on thirty-six different inguinal herniæ, representing a large variety in size, age, and characteristics. One patient died. This one was a man, fifty-eight years of age, and an old drinker. His wound did perfectly well, but ten days after operation he developed alcoholic delirium and died comatose eight days later. I should not have operated upon him until he had eliminated his alcohol more completely.

In three cases wounds became infected from diarrhœa, and were slow in healing, but in no case has any symptom suggesting general sepsis appeared. In one case orchitis occurred and subsided readily.

In one case there was a relapse of hernia, easily accounted for by imperfection in operating, the cord not being separated from the sac sufficiently high up to allow the sac to be ligated at the level of the peritoneum. In no case has any symptom from pressure by the cicatrix upon the cord arisen. Thirty-one cases are reported upon up to date. One has relapsed, two cases cannot be traced; three cases are still under treatment. It may very properly be said that many of these cases have been too recently operated upon to satisfy anyone who requires the proof of time that recurrence may not occur. I think, however, that the patients illustrate satisfactorily that the principles involved in the operation are sound.—*New York Medical Record, March* 23, 1889, *p.* 314.

61.—ON A CASE OF STRANGULATED LUMBAR HERNIA.

By G. H. Hume, M.D., Surgeon to Newcastle-on-Tyne Infirmary.

The following instance of this rare form of hernia occurred in the practice of Drs. Skrimshire and Brumell, of Morpeth, with whom the case was seen on April 24th. The patient was a gentleman, 68 years of age, who had always been constipated, and suffered from frequent attacks of spasms. Latterly he had shown marked evidence of cardiac failure in an extreme blueness and coldness of hands and feet, and in dyspnœa on exertion. For fifteen years there had been a lump in his left side, usually about the size of a fist, but frequently becoming larger; it never altogether disappeared. On more than one occasion it had become enlarged and painful, with symptoms of obstruction.

When seen, the tumour was as large as a child's head. It

occupied the left lumbar region between the crest of the ilium and the last rib. Symptoms of strangulation had been present for two days, and operation was urged, but consent for this was not obtained till the following morning.

A slanting incision was made from the crest towards the ribs. After the skin and subcutaneous tissues, a thin muscular layer—the anterior portion of the latissimus dorsi—was cut through. Immediately underneath was the sac. This when laid open was found to contain anteriorly a coil of small intestine, inflamed and granular; next another coil of small intestine, quite gangrenous; and most posteriorily the sigmoid flexure which had become twisted on itself. The sac communicated with the general peritoneal cavity by a slit-like aperture, and across the neck were stretched two tense cords, which were the agents in producing strangulation. When these cords were divided it was easy, after separating some adhesions, to return the sigmoid flexure and the most anterior portion of the small intestine into the peritoneal cavity. The gangrenous coil was resected to the extent of thirteen inches, the cut ends of the bowel being reunited by Lembert's stitches of fine silk; and this portion of the intestine also was replaced. The sac was then stripped out of its bed, and cut away at the neck. The margins of the peritoneal opening were united by a continuous suture of strong catgut.

The patient rallied fairly well, but sank somewhat suddenly twenty-four hours after the operation.

So far as the disposition of parts could be ascertained during the operation, it seemed to be as follows: The hernial protrusion had taken place in front of the quadratus lumborum, and had expanded but not pushed through the anterior portion of the latissimus dorsi. When the sac was separated from its bed it seemed to have lain between this muscular layer and the aponeurosis of the transversalis. The rupture did not appear to have protruded through the triangle of Petit, as is stated to be the rule in cases of lumbar hernia. Unfortunately, the opportunity was not allowed of ascertaining by post-mortem dissection the exact relation of parts.—*British Med. Journal, July* 13, 1889, *p.* 73.

62.—CASE OF LAPAROTOMY FOR PERFORATION OF THE APPENDIX VERMIFORMIS 15 HOURS AFTER THE ONSET OF ACUTE SYMPTOMS; RECOVERY.

By Robert F. Weir, M.D., Surgeon to New York Hospital.

The following case has several points of interest, which are, first, the earliness and success of the operation; second, the ample proof that it affords of the intraperitoneal nature of the exudations and abscesses that follow a perforated appendix; a spreading peritonitis; third, the fact that antecedent attacks did not ward off,

as Mackenzie states they do, by previous limiting exudations, and, fourth, the uselessness of Treves's advice to cover over by peritoneum the cut end of the appendix where removed. The history of the case is this:

Dr. F. A. L., thirty-four years of age; family history excellent; has had the usual diseases of childhood, but, with the exception of a short attack of intermittent fever six years ago, has always enjoyed a most robust and perfect health; never suffered from any form of dyspepsia or constipation, the bowels moving with regularity every morning. September 26, 1888, complained of general malaise and anorexia; pulse 90, and temperature 100° F. During the night there was quite severe abdominal colic, and, with the expectation of being able to relieve this, a long rectal tube was passed, but no flatus escaped. A warm enema was then taken and a slight amount of fæces expelled, but without the result of giving any relief. In the morning there was localised tenderness and some pain in the right iliac fossa and a small tumefaction. Pulse, 100; temperature, 100.5° F. A little later in the day, the colic not having abated and there being a desire to defecate, patient seated himself at stool, and during an effort of straining, not however very powerful, sudden intense pain was felt in the region mentioned, accompanied by immediate sinking sensations, very marked pallor, and copious clammy perspiration. The patient was moved back to bed, a hypodermatic injection of brandy made, hot-water bottles applied, and in a short time he rallied. Morphia was administered by Dr. Henna, who was in attendance, as was required to relieve pain, and hot applications were made to the right iliac region. For three days the temperature was slightly elevated, 100.6° F. being the maximum point, and the tumefaction increased somewhat in size. After that time, for three weeks there was no rise of pulse or temperature, and the tumour gradually diminished to about the dimensions of a hickory-nut.

The patient then continued about his business until October 31st, exactly two weeks after going out, when he was again seized with colic, local tenderness in the right iliac fossa as before, and a rapidly increasing swelling. There were no febrile symptoms. Treatment as before. In a few days the swelling again commenced to subside and after two weeks in bed patient commenced to move about the house.

The foregoing account was furnished by the patient himself.

I saw him first, with Drs. Janeway and Henna, November 22nd, and found in the iliac fossa a mass the size of an egg, which however was a diminishing one, and was without fever or abdominal symptoms. This was the recrudescence of his third attack. Advised rest only. About six days later, he not having got out of bed, an aggravation of pain and swelling took place—so much so that the next day was appointed for an exploratory incision;

the symptoms by that time, however, ameliorated, and the operation was postponed. He remained in bed some ten days longer, and the swelling then having nearly subsided he got up, and a week later commenced going about, feeling quite restored. On December 23rd a medical friend in the country examined him, and could scarcely feel anything in the fossa. On December 25th, after eating quite heartily the day before, he was seized in the morning with a very sharp pain in the right iliac region, more severe and more extensive than on any of the previous occasions, and this was followed by a slight chill, with temperature 100° F. and rapid pulse and vomiting. The latter recurred several times during the day. I was notified on the afternoon of this attack, and made an appointment to see him early the next morning with Dr. Henna, his physician. At 11.30 p.m. the same evening Dr. Henna reported him as no better, requiring larger doses of morphine to quiet him, and the vomiting as persisting though not frequent. I saw him at once, and found great tenderness over the right side, not extending, however, beyond median line; slight but marked dulness was revealed by the moderate percussion permitted; advised etherization for examination and for an explorative operation if that should be thought best.

Under ether a mass the size of an hen's egg was recognised just on the line of the anterior superior spine, and under antisepsis and with the aid of Drs. Henna and Abbe, and with Dr. Birmingham carefully giving ether, an incision three to four inches long in the course of the linea semilunaris was made down to the fascia transversalis, and when this was cut through, the peritoneum was recognized only as a mass of grayish fibrous structure, more like a fibro-sarcoma; so much so that this idea came to my mind. On cutting and rearing carefully through this kind of tissue to the depth of an inch at least, the peritoneal cavity was opened above purposely for exploration, and the finger found the mass to extend along brim of pelvis, lifting up vessels, or rather pushing them toward the median line. The limiting line of this exudation, which was then recognised to be altogether intraperitoneal, was torn through along junction of parietal peritoneum on the inside of the incision, and several coils of intestine, thickly plastered over as far as seen with recent lymph, were brought into view. The wound was strongly held apart and its bottom, which was resisting and elastic, almost fluctuating, carefully inspected to determine whether further dissection should be carried deeper or aspiration resorted to. It was then seen that the base of this cavity, which I had cut or torn open, was composed of the cæcum and appendix strongly agglutinated to the surrounding intestines.

The appendix was coiled on itself, and only after a little time was the attached end made out. Its free end was ulcerated through and was embedded in a mass of soft adhesions enclosing a

grumous abscess the size of a small hazel-nut. The appendix, some three inches long with a decided mesentery, was tied off about half an inch from the cæcum. The cavity of the wound was then sponged out with a one to five thousand sublimate solution, smeared with powdered iodoform, and packed with iodoform gauze after a large rubber drainage-tube had been inserted. The edges of the wound were carefully closed save where the tube and gauze emerged. An attempt was made to cover the divided end of the appendix with peritoneum by sutures, but was abandoned as difficult and, after all, unnecessary. Certainly the prolongation it caused would not pay, and previous experience in this operation and in extirpation of the gall-bladder had shown that simple ligation was amply sufficient. At the end of the operation, which lasted fifty-five minutes in all, pulse, 91, and the patient's general condition was excellent.

His progress was eminently satisfactory. Temperature was highest the second day, 100° F. Pulse, 90. Very painful spasm of abdominal muscles, due to the sutures made in the muscular planes, was at times experienced. The appendix was much thickened but patulous; its lumen was, however, only the size of a large probe. Its walls were so thickened and elastic as to suggest before opening that fluid was inside, but none was there. The ulcerated opening was at the very tip. No concretion felt or seen at or subsequent to the operation.

The patient made a speedy recovery, and has been free from any uneasy feelings ever since the closure of the wound.—*New York Medical Record, April* 27, 1889, *p.* 449.

63.—A SUCCESSFUL CASE OF LORETA'S OPERATION ON THE STOMACH.

By Frederick Treves, F.R.C.S., Surgeon to the London Hospital.

[After reference to Mr. Hagyard's successful case, the first in this country (see *Retrospect*, vol. xcv., p. 286), Mr. Treves reports his own case as follows:]

The present patient was a carman, aged 27, who was admitted into the London Hospital under the care of Dr. Ralfe, on October 12th, 1887. He was suffering from vomiting and from severe gastric pain. There was nothing noteworthy in the patient's family history. With regard to himself he had never had any previous illness of a definite kind. He had, however, led an irregular life, and had been a heavy drinker. His general health had suffered in consequence of his intemperance. He had never had syphilis. Three years ago he was kicked by a horse in the epigastrium. He became collapsed, and suffered much abdominal pain; he believes he vomited. He thought little of the injury, and was only laid up seven days. Eleven months before his admission into the hospital he

began to experience gnawing pains in the belly in the region of the epigastrium. Previous to this he had had attacks of "disordered stomach," had impaired appetite, and occasional "bouts" of vomiting. He ascribes these symptoms to excessive drinking. The gnawing pain was a new feature. The pain increased in severity and in duration. It was paroxysmal, came on at intervals of from one to three days, and appeared usually a short time after a meal. Very soon each attack of pain was followed by vomiting. The matter ejected was described as brownish, and he states that on each occasion he brought up a quart or so. The vomiting gave him relief.

The pain became more severe, and shot through to his back. He never passed a day without vomiting; he began to lose flesh, and was afraid to take food. During some of the attacks he stated that he became a little yellow. He does not appear to have ever had distinct jaundice. Some months before admission he had commenced the use of morphine, which he ultimately took on every opportunity. He now suffered from constipation.

On admission (October 12th, 1887) he was very feeble, anæmic, and much emaciated. He complained of an incessant gnawing pain in the right hypochondrium, and of occasional attacks of severe paroxysmal pain in the same region. During these attacks he would roll about in bed and scream, but it is possible that the paroxysms were a little coloured by his craving for morphine. The pain came on every few hours on some days, and was described as resembling colic. It was almost immediately induced by taking food. So marked was this that he was afraid to eat. He vomited copiously at least once every day, and was troubled with eructations of foul gas. The bowels acted about once a week. The tongue was broad, pale, and flabby, the pulse feeble, the temperature normal. An examination of the abdomen revealed a great dilatation of the stomach; there was much tenderness complained of in the epigastric and right hypochondriac regions. The seat of the greatest pain was a spot about one inch and a half above the umbilicus. This pain was always described as shooting back to the spine. There was no jaundice; the urine was scanty but normal; the liver, spleen, lungs, and heart were reported as healthy. On the day after admission the patient vomited three quarts. When the stomach was empty, a little dulness was made out in the vicinity of the pylorus. It blended with the area of hepatic dulness. No tumour of any kind could be detected. The patient had never vomited blood, nor does blood appear to have been passed by the bowel.

The stomach was washed out daily, and very little food was given by the mouth; nutrient enemata were commenced, and the pain was a little modified first by salicylic acid and later by cocaine. Although the pain and the vomiting were lessened, the patient did not exhibit any general improvement. He continued to waste and to lose strength. On October 31st, œdema of both feet appeared.

On November 14th the report was to the effect that he was more emaciated and more anæmic, and was so weak as to be unable to sit up in bed. He was now fed solely by nutrient enemata, taking only a little fluid by the mouth. He was always found lying on the left side, with the knees drawn up.

On November 30th it was evident that the patient could not live many days longer unless he was relieved. To his previous symptoms diarrhœa had been added. He was extremely feeble, and utterly apathetic.

Dr. Ralfe had formed an opinion that the case was one of non-malignant stricture of the pylorus. At his request, I arranged to make an exploratory incision, and if necessary to dilate the pylorus.

The operation was performed on December 3rd, 1887. Chloroform was administered, and the operation was carried out under the spray. Carbolic acid lotion of the strength of 1 in 40, and warmed to the temperature of 90° F., was used throughout the operation. All the sponges used were warmed.

I made a vertical incision, four inches in length, in the median line. The lower end of the cut reached as far as the umbilicus. The greatly dilated stomach was at once exposed. The pylorus was at first difficult to define. It appeared to be imbedded in a mass of almost cartilaginous hardness, which was firmly adherent to the under surface of the liver. Not only was the actual pyloric extremity of the stomach adherent to the liver, but a portion of the viscus itself, to the extent of some three square inches, was in like manner attached.

It was evident that the adhesions were inflammatory, and that they were especially tough and thick in the region of the pylorus. I divided the adhesions as freely as was possible. The segment of the liver to which they were attached was pale, and had the appearance of being atrophied. It was found impossible to quite free the pylorus and to entirely separate the stomach from its attachment to the liver.

I then made a vertical opening into the stomach midway between the two curvatures and about two inches from the pyloric orifice. Before this opening was made the stomach was drawn as far forward into the wound as possible, and was gently held by a small pair of dressing forceps, the blades of which were protected by india-rubber. The interval between the viscus and the parietes was plugged with sponges so that any fluid escaping from the stomach would have been prevented from reaching the peritoneal cavity. To avoid bleeding in opening the stomach I think that the incision should be vertical, and should not be too near the pylorus. It should be scarcely large enough to admit the index finger, with which it is at once plugged. In Mr. Hagyard's case the bleeding at this stage of the operation is described as "terrific." A rush of escaping gas followed the opening of the stomach, but as the

wound was at once plugged with the right forefinger no fluid escaped and there was no bleeding. Within the stomach the portion of the gastric wall still adherent to the liver could be well made out. It was perfectly smooth. The pylorus was surrounded by a ring of very dense tissue, and appeared to be set in cartilage. It would not take the point of the forefinger. I steadied the pylorus with the left hand while I gradually bored the right forefinger into the constricted orifice. The process of dilatation was slow, but in time the finger was introduced into the duodenum. Without withdrawing the finger from the stomach I enlarged the wound in the viscus with a bistoury held in the left hand, and passed the middle finger into the stomach. The wound even now was small, and the fingers were closely embraced by the gastric wall. Under such conditions hemorrhage was scarcely possible. The middle finger was passed through the pylorus, and the forefinger inserted slowly after it. In a little while the orifice was sufficiently dilated to take the two fingers. During the process the pylorus was steadied by the left hand. This dilatation appeared to me to be quite sufficient, because an orifice admitting the two fingers together would have a circumference of about four inches. Loreta is reported to dilate the pylorus with the two forefingers until they are more than three inches apart. This would represent an opening with a circumference of not less than seven inches. Had dilatation to this extent been attempted in the present instance the walls of the viscus would certainly have been ruptured.

The wound in the stomach was now closed by a continuous suture of fine silk. This suture included the mucous and muscular coats, and was introduced by means of a Hagedorn's needle. The silk was so applied as to arrest some little bleeding that was occurring from the edges of the incision. The ends of the silk were cut short, and the wound was then completely closed by many points of Lembert's suture, which involved the serous coat only. The parts around the operation area having been cleansed, the abdominal wound was closed by deep interrupted sutures in the usual way. The wound was dressed with a single sponge dusted with iodoform. This was firmly secured in position by means of a broad and tightly applied flannel binder. The temperature on the evenings of the third and of the eleventh days rose to 100° ; with these exceptions it remained normal.

The patient at once experienced relief from the operation. He was kept under the influence of morphine, and was fed by nutrient enemata ; he was allowed to suck a little ice to relieve thirst ; there was no return of the vomiting. On the seventh day the stitches were removed, and the wound supported by gridiron strapping. On the evening of this day the patient vomited a little ; this was the third and only time that he was sick after the operation. He became greatly excited during this attack of vomiting,

sat up in spite of all remonstrances, and made violent efforts to get out of bed; he persisted in yelling for nearly an hour. As a result of these exertions the wound, which had healed by first intention, gave way, and the stomach was once more exposed. The margins of the incision were at once brought together by means of long strips of plaster, and a stronger binder was applied. As the sickness was apparently due to the decomposition of accumulated mucus in the dilated stomach, that viscus was now washed out every other day with a little warm boracic lotion. This gave the patient great relief; the nutrient enemata were continued.

On the ninth day a little milk and soda water was given by the mouth; the quantity of food thus administered was gradually increased each day. The nutrient enemata were continued until the fourteenth day, when they were finally omitted. The patient after that date took all his food by the mouth.

On the eleventh day some solid food was given in the form of toast soaked in tea. The washing out of the stomach was discontinued on the seventeenth day. The patient complained of no pain, but remained very restless, and persisted, except when restrained, in sitting up in bed. The wound healed by second intention. The bowels acted regularly and without aid after the enemata had ceased to be used.

On the twentieth day the patient was allowed to leave his bed. Four days after this he insisted upon leaving the hospital, and walked without assistance to the door. He had now no pain and no sickness and was taking his food well; the stomach was, however, still much dilated, and the wound was not firm. It was intended that massage should be applied to the abdomen, but no arguments would induce the patient to remain in the wards.

The man presented himself at the hospital at the end of two or three months. He was greatly improved in health, could eat well, was never troubled with sickness, and had no difficulty with his bowels. He complained of a sense of weakness at the wound. The cicatrix had yielded considerably, leading to some protrusion of the contents. A stout belt was ordered, and with this he expressed himself as feeling quite comfortable.

I saw the patient again in December, 1888, about twelve months after the operation. He now complained only of poverty. He had an excellent appetite, and was troubled with neither sickness nor dyspepsia. He had returned, so far as his very limited means would allow, to his previous intemperate habits. He still wore his belt, and the stomach appeared to have entirely returned to its normal dimensions.

It is evident that this operation must of necessity be of very limited application, since the examples of non-cancerous stenosis of the pylorus are quite rare. The procedure has been carried out with astonishing frequency on the Continent, and it would be

interesting to know the precise pathological condition which has been found to be associated with these operations. The specimens in the various museums in London throw little light upon the fibrous stricture of the pylorus of which so frequent mention is made in Continental literature.

In the present case the narrowing of the pylorus appeared to be, to a great extent, due to the contraction of peritoneal adhesions. The trouble may have originated in an injury to the stomach due to the kick from a horse, or may have followed upon a perforating ulcer at the pyloric extremity of the viscus.—*British Med. Journal, May* 18, 1889, *p.* 1105.

64.—NOTES OF A CASE OF TRAUMATIC EFFUSION INTO THE PERITONEAL CAVITY; RECOVERY.

By Eustace G. Carter, M.R.C.S., Chapel-Allerton, Leeds.

On May 18th, 1888, I was called to W. S——, a boy aged ten years, who, whilst playing on the brink of a disused quarry, lost his footing and fell from a height of forty feet, alighting at the bottom with his abdomen across a projecting boulder. He managed somehow or other to scramble out at the opposite side of the quarry, which was less precipitous, and to walk home—a distance of a quarter of a mile. When I saw him he was suffering a good deal from shock, but was sensible and remembered all about the accident. There was a lacerated wound extending obliquely across the forehead for three inches, the bone being laid bare beneath. There was also a green-stick fracture of both bones of the left forearm, about the junction of the middle with the lower third. The abdomen presented a normal appearance, save for a small abrasion about the size of a shilling, situated one inch below the costal arch, and two inches to the right of the middle line. On palpation there was some tenderness in the right hypochondriac region; no increase of hepatic dulness, or absence of the same, on percussion. There were no other injuries.

The subsequent history of the case is as follows. For the first forty-eight hours there were few abdominal symptoms, save vomiting and pain in the hepatic region, the motions and urine being both free from blood. On the third day, the pain in the hepatic region was more severe, and eventually became general over the whole of the abdomen, which became distended and tympanitic, the patient now presenting all the classical symptoms of acute peritonitis. About this time icterus set in, the conjunctivæ being deeply bile-stained, the urine bilious, and the motions light-coloured and clayey. Three days subsequently (that is, a week after the accident), dulness on percussion in the flanks developed, which rapidly extended, taking the place of the tympanites, so that at the end of a week the abdomen was dull

on percussion from the pubes to above the umbilicus, and on palpation a fluid wave could be easily propagated across the abdomen. On June 3rd, a fortnight after the accident, I tapped the abdomen by means of a Southey's trocar, my reason for using such a small instrument being that the patient was extremely weak and very nervous, the introduction of even this small instrument causing considerable mental disturbance. I withdrew six pints of dark-green viscid fluid, of a specific gravity of 1020, which coagulated with heat and nitric acid. Pettenkofer's test produced the characteristic reaction for the biliary acids. Microscopically, a few blood-cells were found, but nothing else of any moment. The boy was much relieved by the paracentesis, but the body soon began to fill again, so that by the end of a week I had to repeat the operation, withdrawing to within an ounce or two of six pints of fluid, exactly similar in character to that I have already described. At the end of the following week I tapped again, removing five pints of fluid. The abdomen was thus tapped three times. A little fluid again accumulated, but was gradually reabsorbed, and no further tapping was necessary. In the meanwhile the patient began to improve, the urine by degrees assuming its normal appearance, bile again appearing in the fæces, and the icterus gradually disappearing from the skin and conjunctivæ. The wound in the forehead healed by granulation without any exfoliation of bone. The fractured forearm, which had been put up in the usual manner, united kindly, and by Aug. 3rd (ten weeks after the accident) the patient was able to go to the seaside. The boy is now perfectly well and strong, and, save for the scar on his forehead, shows no traces of the accident. Symptoms were treated as they arose, opium in small doses being the principal drug administered. Benger's peptonised milk gruel was simply invaluable in this case, the patient vomiting every form of liquid nourishment, even milk freely diluted with lime-water.

Remarks.—The exact lesion which caused the abdominal symptoms in this case is obscure; however, one of three causes, it may be presumed, brought them about—viz., (1) rupture of liver, (2) ruptured gall-bladder, and (3) rupture of a cyst in connection with the liver. To each of these premisses some objection can be urged. 1. The apparent absence of extravasated blood in any quantity within the peritoneal cavity seems to negative the probability of there being any rupture of the liver substance. 2. The comparatively rapid recovery of the patient militates against the theory of ruptured gall-bladder, for it is scarcely likely that a large rent (?) in that viscus would close completely within ten weeks after the accident, without at least for some time longer leaving a fistulous opening and causing further accumulation of fluid within the peritoneal cavity. 3. The rupture of a cyst in connection with the liver would point strongly to its being hydatid in nature, but

the fluid withdrawn presented none of the characteristics usually assigned to hydatid fluid, though as regards the physical characters of the fluid the accompanying inflammatory symptoms would no doubt account in some measure for its alteration in appearance and chemical reaction, but not for the presence of bile, nor yet for the absence of hooklets when examined by the microscope.—*Lancet, May* 25, 1889, *p.* 1029.

ORGANS OF URINE AND GENERATION.

65.—THE TREATMENT OF CONFIRMED CATHETER LIFE BY A PERMANENT PERINEAL OPENING.

By Walter Whitehead, F.R.C.S.Edin., F.R.S.Edin., Surgeon to the Royal Infirmary, Manchester.

[Mr. Whitehead's paper contains brief notes of three cases of prostatic disease, one of them a case of peri-prostatic abscess occurring in a young man aged 22, in which the method described below was adopted with most successful results. After reference to the writings of Sir Henry Thompson, Mr. Reginald Harrison, and Mr. McGill, the author says:]

About six years ago I was more than ever impressed with the desirability of avoiding the pain and inconvenience which attend the constant passage of catheters; and I also became more familiar about this time with the facility with which a bladder could be entered for the purpose of digital exploration, and the idea occurred to me that at least three most important desiderata might be attained by a perineal urethrotomy. The bladder could be drained, it could be given necessary rest, and a considerable length of urethra would be relieved from the irritation of repeated catheterism. In consequence of the relapses which almost invariably followed the closure of the perineal wound and the re-establishment of the *status quo*, I further decided to maintain permanently the direct passage through the perineum. In the conception of this operation advantage was taken of the fact, which had been generally overlooked, that an opening in the membranous urethra does not involve, as many suppose, incontinence of urine.

I am aware that there are numerous instances on record where, after perineal cystotomy, the wounds have failed to heal, and a permanent fistula has remained; but in these cases the fistulæ have been accidental, and never, to my knowledge, have they been claimed as the result of a deliberate intention on the part of the operator. And, further, a perineal fistula in itself would afford no advantage; but if the fistula is made, and utilised in the manner I have to propose, then it becomes the key to the difficulty

which attends the treatment of prostatic enlargement. I will now proceed, in the first place, to describe to you the operation itself, which differs in no essential detail from an ordinary median urethrotomy. A staff is passed into a previously moderately distended bladder. A lithotomy-knife, with the edge upwards, is plunged directly into the groove of the staff from a point an inch above the anus to a point a little in front of the prostatic apex. I prefer to enlarge the skin incision as I withdraw the knife, leaving the external wound, when finished, about an inch in length, and directed from the raphé towards the centre of the space between the anus and the left tuber ischii. As the staff is withdrawn the finger is passed into the bladder when possible, and the opportunity is taken of making a digital exploration. When nothing is discovered admitting of immediate operation, the tube I have been at some pains in getting made to my satisfaction is introduced and maintained by a T-bandage, which I have found quite as effectual and much more comfortable to the patient than tapes. My preference for enlarging the external wound by one sweep of the knife during its withdrawal, in the place of cutting down on the staff by repeated incisions, is to secure a clean section and thus avoid an irregular wound, which gives greater facilities for the lodgment of discharges. The limited space between the point where the knife first enters the urethra and the rectum does not afford sufficient room for a wound which is required to remain permanent unless the incision be made obliquely in the manner described. The original opening in the skin should be made large enough at first, as it will then last for years without the necessity of dilating; but, if made too small, it may require enlargement within a few weeks of the operation. This, though a small matter to the surgeon, is generally a subject of considerable concern to the patient. It is the cicatricial contraction of the skin, and not of the deeper parts, which gives rise to this trouble.

Having obtained a short and wide passage of communication with the bladder, through which we experience no difficulty either in withdrawing the urine or in frequently injecting, with force and volume, large quantities of fluid, our next desire is generally to subdue the cystitis which usually exists, in as expeditious a manner as possible, and for this purpose there is nothing, as a rule, more simple or effectual than hot water. In order that this should be successful, the temperature should be gradually increased up to 120° F. Most patients can be induced by degrees to tolerate such a heat with comfort, and the higher the temperature, the greater the sedative effect.

There is nothing to be gained by using drugs simply for their germicide properties. What we require is something to scour from the tender mucous membrane every drop and particle of

irritating matter. I have found creolin to excel every other drug in concealing, if not correcting, the putrid smell of some urines, and if the urine is loaded with tenacious viscid mucus, hot solutions of sea-salt appear to answer best. One of the few drugs I have found of undoubted benefit in cystitis is the oxymuriate of bismuth. I was induced to try it from its well-known sedative influence upon the inflamed urethra. The plan of using it is to introduce a drachm, well agitated in four ounces of hot water, after the bladder has been thoroughly washed out. The ponderous character of the bismuth causes that which does not adhere to the mucous membrane to precipitate behind the prostate. Patients invariably express their satisfaction at the comfort they derive from this treatment. They state that the desire to micturate is not so frequent, and that the reflex pain along the urethra is diminished. It is necessary to remove the whole of the bismuth by irrigation before administering a second dose, as the bismuth undergoes chemical changes in the bladder, being most probably converted into a sulphide possessing no known therapeutic advantages.

The advantages of the operation are, in the first place, to enable the bladder to be completely relieved of its contents whenever desirable, and by this means to derive all the benefits of physiological rest. Secondly, it provides a channel through which we can substitute a thorough for an imperfect system of washing out the bladder, the elasticity of the membranous urethra permitting the introduction of a larger catheter than the penile urethra will admit. The size of the catheter admits a greater and more forcible volume of fluid to be used for irrigation purposes, by which means we can more effectually dislodge the adherent mucus, and remove pus and any particles of calcareous matter lodged behind the prostate, or in the cavities of any sacculi, should they exist. This reduces and economises time, and lessens the risks to the patient due to prolonged exposure. At each washing, six inches of the most sensitive part of the urethra escape the irritation produced by the passage of a catheter. By the maintenance of the permanent opening we avoid the relapse which almost invariably takes place when the opening is allowed to close. It affords a speedy means of converting a putrid into a pure urine, and, finally, from the cases I have operated upon, it would appear that all the inconveniences attending enlarged prostate are permanently arrested without incurring the risks of a really serious operation, and that nothing then remains in respect of that condition to curtail the length of an average life. In all my cases there has been perfect control over the urine after the operation.

Although the title of my subject implies the inference that I restrict this plan of treatment to confirmed and otherwise hopeless cases, this by no means represents my opinion. I have determined

only to recommend what I have tried and found successful, but I think it logically follows that if the operation is successful in advanced cases, we may reasonably conjecture that it would be all the more successful if adopted earlier, as the advanced cases are undoubtedly the result of neglect in the earlier stages. So far I have been deterred from operating earlier by the reluctance of patients to undergo any operation until the intensity of their sufferings has compelled them to submit. I further venture to claim that the advantages of this method have been extended to other conditions of the bladder. For instance, in malignant growths with periodic attacks of hemorrhage, the retention of a perineal opening generally renders the surgeon master of the situation, as he can at any moment place the patient in a condition of collapse, and by this means arrest the hemorrhage. From what I have stated, it may be gathered that, although what I advocate is only, perhaps, a small advance in the direction of what has been practised before, nevertheless, small as it is, it is sufficient to secure advantages which have never been hitherto within the resource of surgery, as it affords freedom from pain and irritation, immunity from relapses, and an escape from the miseries of an incontinent bladder in cases of enlarged prostate.

In conclusion, I wish to emphasise the chief features of this treatment: First, that the operation is undertaken with the design to establish and permanently maintain a fistula, in the closest possible proximity to the bladder, but in front of the prostate. Secondly, that the fistula can be utilised at pleasure for the dual purpose of removing the contents of the bladder, and of minimising the inconveniences attending regular, systematic, and thorough irrigation. I am under the impression that the cases I have cited are the first on record where the bladder has been approached through the perineum with the deliberate intention of keeping the opening permanent for the purpose of relieving the pain and misery of an enlarged prostate.—*British Med. Jour., April* 13, *p.* 831.

66.—ON THE CHOICE OF INSTRUMENTS FOR THE TREATMENT OF STRICTURE OF THE URETHRA.

By Walter Rivington, M.B., Surgeon to the London Hospital.

It is now recognised that everyone who has experienced the passage both of a silver and a soft flexible instrument on his own person will give so decided a preference to the latter that it may be enunciated as an axiom that a metal instrument should never be employed when a soft instrument will suffice. It is not possible always to adhere to one description of catheter. Surgeons of large experience must have met with cases in which it was difficult to pass a flexible instrument, whilst a silver or metal instrument glides in easily; and other cases in which silver or metal instruments may

be arrested, whilst flexible instruments are admitted with facility. Then there are cases which seem, indeed, to be cases of stricture, for a small catheter cannot be passed, and the surgeon is told by his house surgeon: "This is a very bad case of stricture, sir; I cannot get in a No. 1 or $\frac{1}{2}$"; and the surgeon takes a full-sized silver catheter and passes it into the bladder without a hitch. The explanations of the three kinds of cases which I have just mentioned comprise such conditions as spasm (and this is a very real condition now and then); slight obstruction, which suffices to arrest a flexible instrument; tortuosity of the canal, which may stop a silver instrument; a slight bar in the prostate, or at the neck of the bladder; large follicles, like the *lacuna magna* and others, which all look towards the meatus, and which are avoided when an instrument is passed from behind forwards, but often hinder the progress of fine bougies and catheters; the narrowing of the urethra at the junction of the bulbous and membranous portions; the passage of the urethra through the triangular ligament; and some difficulty in micturition due to other causes than stricture, but hastily set down as due to stricture itself. The surgeon of experience is alive to all these sources of fallacy, and runs them over in his mind when a difficulty occurs. Hence he almost intuitively adapts his means to the end in view; and it is this superiority in experience and judgment which may enable the older man, perhaps even the old fossil, to cope with the brilliancy of youth, a little too confident in its own opinions and powers. There is a further fallacy, to which Mr. Berkeley Hill has directed attention; and that is, that a narrowing near the meatus may give rise to the semblance of a stricture some inches down; with the division of this narrowed part the suppositious stricture at or near the bulb entirely disappears. Another instance of varying our means is afforded by a simple expedient recommended by authorities in using fine bougies. Our treatment of the tightest strictures consists in endeavouring at first to introduce the finest bougie, and when this is accomplished the stricture may almost be regarded in the generality of cases as cured. The bougie is retained and the patient passes urine by the side of it. As soon as the stricture is dilated sufficiently, a bougie or catheter a size larger is passed, and then the French catheters (much superior to the English variety) are resorted to till the full size is attained. Now, in passing a fine bougie, success is much more likely to be secured if it is turned up a few lines from the point. By this means it is lifted from the floor of the urethra or turned away from contact with the urethral wall, and more readily avoids follicles, and enters the orifice of a stricture which may be placed in any position in relation to the circumference of the canal. I have often succeeded by practising this simple manœuvre, when subordinates had failed. Larger catheters and bougies also pass more readily when turned up at the point,

and the French coudée catheter is one of the most useful instruments, especially for employment by the patient himself, in cases of enlargement of the third lobe of the prostate. When you have selected a filiform bougie, whether flexible or of catgut or whalebone, and bent it up at the point, it is a good plan to inject oil into the urethra. The bougie is then introduced, and a rotatory movement given to it whenever it is arrested, and when it arrives at the stricture. By twirling it round between the finger and thumb as it is pressed onwards, the tip is enabled to enter the strictured part. If it becomes engaged in a lacuna or a false passage, you may either withdraw it a little and then twirl it on again, or leave it there and pass a second, and if this also gets into another lacuna or false passage you may pass a third and repeat the process until all the lacunæ or false passages are filled, when another is passed, and will probably traverse the stricture unless it becomes bent upon itself. Success, however, does not always attend this ingenious method, and I generally prefer persevering with a single filiform bougie. Whalebone is the best material if the stricture resists penetration, but, being stiff, it may make a false passage without proper care. If the stricture admits a filiform bougie the surgeon has open to him more than three courses. He may leave the bougie in for two or three days and thus obtain what may be called physiological dilatation of the stricture. This course I prefer very much to resorting to any variety of physical force, open or disguised. A covert way of applying physical force is to employ tapering bougies, and long ones with a fine or filiform extremity are made for this purpose. The objection to this wedge-like pressure is that the stricture resents it, and on removal of the bougie swelling takes place and the canal becomes blocked. A bougie that is left in a stricture ought to pass quite easily through it. If you try to hurry the dilatation of a stricture, you soon find out the truth of the proverb, "The more haste the less speed." *Festina lente*, as Mr. Harrison advises, is an excellent maxim. The wedge-like method of dilatation may be carried out by means of other instruments now before us. There is the American plan of screwing on to the small bougie one of larger size, or a catheter, and pushing forward the small bougie so as to double it up inside the bladder. Either a flexible or a metal instrument may be screwed on to the bougie. Then there is the plan of sliding catheters over the filiform bougie. I will not undertake to say when the sliding principle was first introduced, but Dr. Andrew Buchanan and Mr. T. Wakley introduced instruments of this kind. Here is a very long tube sliding over a bougie which, I am told, is used sometimes by one of my colleagues, and may be applied indifferently to the urethra and the œsophagus. I have not had any experience of it, but I have employed with advantage Gouley's tunneled catheter on the recommendation of Mr. Reginald Harrison.

This catheter which I have in my hand is threaded near the point on to this whalebone bougie, which is first introduced into the bladder through the stricture. By exercising a little pressure Gouley's catheter can generally be induced to slide along the bougie through the stricture into the bladder, and seems to me to be the best instrument of the kind for retention cases. Again, Holt's dilator may be screwed on to a filiform bougie, which is pushed before it into the bladder, and rapid dilatation or disruption practised. Holt's dilator has been loudly extolled by some and as loudly condemned by others. It may be employed in one of two ways—either for forcible splitting of the stricture, or quite gently, after the manner of a glove stretcher. In this latter way the tube is insinuated along its guide, and the stricture sufficiently stretched to permit a larger instrument than before to be introduced. When employed for disruption the tubes are pushed rapidly and forcibly along the guide. Most surgeons, I think, prefer internal urethrotomy to splitting; for splitting, it is said, is not a truly scientific method. The surgeon does not know precisely what he is doing. Not only does he tear through the stricture, but the rent is liable to invade the healthy urethra to an extent which the surgeon can neither regulate nor foresee. The rent is ultimately repaired by fibrous tissue, which contracts, and a bad traumatic stricture is added to the original narrowing. Mr. Teevan used to say that he had a black list of bad cases to bring against the splitting method, whilst the supporters of the plan aver that they never saw any harm result from it. Internally urethrotomy has been equally lauded and condemned. I have used both methods sparingly, and, so far as my experience has gone, with no other than good results. But there are special dangers from all instruments and operations, and occasionally from internal urethrotomy. You may have undue hemorrhage, extravasation, rigors, and suppression of urine, which will be a set-off against the ill effects sometimes following splitting a stricture. Even simple catheterism has its fever, and, without any fault of the surgeon, may be attended by a fatal issue when the kidneys are unsound.—*Lancet, Sept.* 14, 1889, *p.* 532.

67.—ON DEEP-SEATED ORGANIC URETHRAL STRICTURES AND THEIR TREATMENT.

By E. L. Keyes, M.D., New York.

The present paper proposes to discuss only organic stricture of the urethra situated at or beyond the bulbo-membranous junction. No one was yet in a position to say that any operation would radically cure deep urethral stricture, while that of the anterior urethra might be cured.

Three varieties of stricture are encountered clinically in the deep

urethra. First the soft stricture, which was a very superficial organic lesion involving only the surface of the mucosa. It follows gonorrhœa, and was generally situated at the bulbo-membranous junction, and might even cause complete retention of urine. Such a stricture would often not admit a filiform bougie, yet a blunt-steel sound of ordinary size might pass in many cases. The second variety was the purely fibrous cicatrical stricture of traumatic origin found in the urethra which had not been the seat of gonorrhœa. It might involve only the mucous membrane or extend through all the tissues of the entire thickness of the perineum. It might be unaccompanied by gleet. It cut like true fibrous tissue. This stricture was linear or annular but clearly defined. The third variety was the nodular stricture, which might supervene after a traumatism notably in strumous subjects, especially where there had been much suppuration or multiple fistulæ. It was often found in cases of stricture following gonorrhœa. This variety was lumpy. ill-defined, irregular, tortuous, never linear. Gleet was the rule, and fistulæ might be present.

The first question which naturally arose was: Does dilatation ever radically cure deep urethral stricture? Cases treated by myself and my former partner, the late Dr. Van Buren, demonstrate the possibility of cure by dilatation. In one case the stricture at first admitted only a No. 14 F. instrument, but after a number of months of treatment was cured, and a number 28 easily passed. Twelve years afterward, no instrument having been used during the interval, a No. 24 entered without meeting an obstruction. This was a soft stricture, the variety in which a radical cure was possible by dilatation.

Does electrolysis ever radically cure deep urethral stricture? I expressed a decidedly negative opinion on this subject in a paper read before the meeting of this association in Washington last year, and my opinion is the same still. It seems probable that the dilatation produced by the electrolytic instruments caused what improvement there was in the strictures so treated.

Does perineal section ever radically cure deep urethral stricture? The term radical is suited to the operation, as experience showed, since the advantage thus gained must be maintained by means of the sound. The difference of results obtained in different cases did not wholly lie in the extent of the cutting done, but depended much upon the quality of the tissues cut. It was possible, for a purely fibrous stricture might be radically cured by perineal section, but that an inodular stricture usually was not. Two comparatively recent novelties in operative methods for deep-seated stricture merit attention. They are excision of the stricture and transplantation of mucous membrane derived from some outside source. Both seem to offer more chance of radically curing inodular stricture than any other means now possessed. Heusner had reported ("Berl. klin. Wochenschr.") an operation in which he dissected out a strictured

area two centimeters in length, including a portion of the bulbous and of the membranous urethra. The divided ends of the urethra were then found to be three centimeters apart. The anterior end was loosened from the surrounding tissues, and the severed ends were drawn together, and held by five points of catgut suture. A catheter was kept in place for twelve days. No sound was used. On the thirty-fourth day a No. 24 F. catheter passed easily, and a year later the patient reported himself well.

Three cases of impermeable stricture had been operated on by Wolfler of Gratz, in which he excised the diseased segment, and after eight days transplanted strips of mucous membrane to the roof and sides of the granulating area. The strips were cut from some convenient vagina and were several centimeters broad. They were kept in place by a packing of iodoform gauze, no sutures being used. The bladder was carefully drained during the process of union of the graft with the surrounding tissues. A small fistula remained in each case when reported. A year after the operation one of the patients could urinate in a large jet; another could admit a No. 20 F. sound.

It seems to be conclusive; (1) There are three forms of deep organic urethral stricture—the soft stricture, the purely cicatricial stricture, and the nodular stricture. (2) That soft strictures are often cured by dilatation. (3) That the fibrous stricture in patients always free from gonorrhœa might sometimes be radically cured by longitudinal section of the roof and floor of the canal at the seat of the stricture, followed by the passage of sounds. (4) That nodular strictures do not seem to be radically curable by this method. (5) That nodular strictures might possibly be radically cured by total excision of the diseased tissue and suturing of the ends of the urethra; when approximation of the separated ends was impossible, transplantation of healthy mucous membrane might be employed.—*Chicago Medical Standard, July* 1889, *p.* 5.

68.—ON THE RESULTS OF DILATING URETHROTOMY.

By Fessenden N. Otis, M.D., Prof. of Genito-Urinary Diseases, College of Physicians and Surgeons, New York.

The first really confident claims for the capacity of dilating urethrotomy to bring about the complete and permanent cure of stricture were made in 1875, and were based upon the results of thirty-six re-examinations with the bulbous sound of the full size of the normal urethra, at periods varying from six months to three years after the operation, during which interval no use of sounds had been resorted to. In 31 of these cases, or about eighty per cent., *complete freedom from the former strictured condition was demonstrated,* by the unobstructed passage, to and fro throughout the entire urethra anterior to the bulbo-membranous junction, of a

metallic bulbous sound of the full normal size of the urethra, as determined at the time of operation. In a second series, consisting of 136 tabulated cases, presented in 1878, 82 re-examinations were reported; out of which 67 were found entirely free from stricture. In 3 of these cases six years and six months had intervened between the date of operation and the re-examination; in 2 cases, over five years; in 3 cases, over four years; in 10 cases, over three years; in 7 cases, over two years; in 20 cases, over one year; in 10 cases, over six months.

Besides these, 2 cases were reported in the second edition of my work on "Stricture of the Urethra," operated on in 1872 and in 1880 re-examined, and then, over eight years from date of operation, found to be free from stricture. In the first case, five strictures were originally present, the smallest of a calibre of 22 French. In the second, there were also five bands of stricture operated on, the smallest, 16 French. In addition to these cases was one operated on in March, 1875, for four strictures, defined by a bulb of 24 mm. in circumference, in a urethra of normal calibre, 36 French. This case was re-examined in May, 1880, and found completely free from all stricture by the easy passage of a No. 36 bulbous sound—five years from the date of operation, and no sound, bougie, or other instrument of any sort introduced during the interval. Again, in 1881, 2 cases presenting a long interval between operation and re-examination were met; the first seven years, the second eight years. In the first, strictures, four in number, were divided from 27 to 36 French. In the second, there were six strictures, ranging from 24 to 30, which were divided to 38.

Another case, operated on in May, 1871, re-examined in 1883, the longest interval then on record, showed complete cure of stricture by dilating urethrotomy, over twelve years after the date of operation. During the past summer I have had extracted from my case-books, and carefully tabulated, a third series of 420 cases, in which the normal calibre of the urethra, the size, number, and locality of the strictures are recorded, with the results of re-examination in 62 cases.

Recontractions were found to have taken place in 7 cases of strictures situated posterior to one inch, while at or near the meatus recontractions had occurred in 11 cases. I have recently had an opportunity of re-examining the case first operated on by dilating urethrotomy, and for the complete division of whose strictures the dilating urethrotome was originally designed. Extensive stricture was present, which had failed to be permanently relieved by several years of treatment by gradual dilatation. Divulsion with the instruments of both Holt and Vollemier had been practised to the fullest capacity of those instruments, and recontractions, from that point to 24 of the French scale, had taken place, associated,

as the chief source of annoyance, with a persistent gleet. By means of the dilating urethrotome the strictures were all divided up to 32 French. Subsequent re-examinations, on several occasions, at intervals of three or four years, were made with the bulbous sound No. 32, without at any time detecting a trace of former stricture, and the gleet disappeared within a few weeks after the operation. No instrument of any sort was introduced for dilatation or any other purpose, except by myself at the intervals just mentioned, for the purpose of examination alone. On the last occasion, May, 1888, Mr. A. (whose case is fully described in my book on "Stricture of the Male Urethra") came to me for consultation concerning a difficulty quite independent of stricture, but was induced to permit me to again examine his urethra. I at first introduced, as on previous occasions, a 32 bulbous sound, and was struck with the complete freedom from any holding at any point. I then introduced the urethrometer, turning it up to 34, two millimetres above the previously estimated normal calibre, and found that traction enabled me to draw it out at this size, thus demonstrating in the most perfect manner the complete absence of the former strictures and the radical cure of the case, as shown by entire absence of every trace of stricture fifteen years and ten months from the date of operation.—*N. Y. Med. Record, July* 20.

69.—ON SUTURE OF THE BLADDER WOUND AFTER SUPRA-PUBIC LITHOTOMY.

By Charles J. Bond, F.R.C.S., Surgeon to Leicester Infirmary.

Of the six cases operated on by supra-pubic lithotomy, the bladder wound was carefully sutured in four. All of these, I am glad to say, healed by primary union, and there was no leakage from the wound after the first twenty-four hours. Two of these cases were boys under twelve, and two were adults over forty. A few words as to the method of the operation may be useful. The bladder is distended in the usual way with boracic lotion until it rises well above the pubes, and in the adult this may require the injection of from twenty to thirty ounces; latterly in children and in adults I have not distended the rectum at all. The coats of the bladder are then cut down upon and exposed without any dissection, the peritoneal fat and areolar tissue in front of it being drawn upwards from below by the forefinger of the left hand; this is, I think, a

Needle with double curve and eye at point.

point of some importance, as it prevents hemorrhage, and the bladder can be reached when not so distended or prominent as

usual. A fine No. 0 silk suture is then passed by means of the doubly curved needle with eye at the point through the muscular coats at the upper end of the wound, and as near the peritoneal reflexion as possible. This marks the upper limit of the incision, and serves to hold up the bladder. It is very important to make the incision as near the top of the bladder as possible, as the case with which the subsequent sutures are introduced depends on this point. After the incision and extraction of the stone the bladder is thoroughly irrigated with antiseptic lotion, and the sutures are introduced. These are of very fine No. 0 silk, and are passed through the muscular coat on either side of the incision by means of the doubly curved needle mentioned above. They are very close together, and are inserted while the wound is held on the stretch by the upper suture. They thus tend to approximate even more closely as the bladder contracts. Especial care is taken to pass the lower suture below the level of the actual incision. The abdominal incision is then sutured and dressed with dry dressings, a drainage-tube being left at the lower angle. No catheter is left in the bladder.

It is noteworthy that in three out of the four cases some urine escaped between the bladder stitches on the first occasions of passing urine within twelve hours after operation, and this occurred whether a catheter was used or not. In none of the cases was a catheter necessary after the first twenty-four hours, and in the last case, an adult, the urine was drawn off six hours after operation, and none escaped from the wound. In none of the cases did this escape of urine between the stitches delay the union, which appeared to be complete in thirty-six hours, all the urine being then passed naturally.

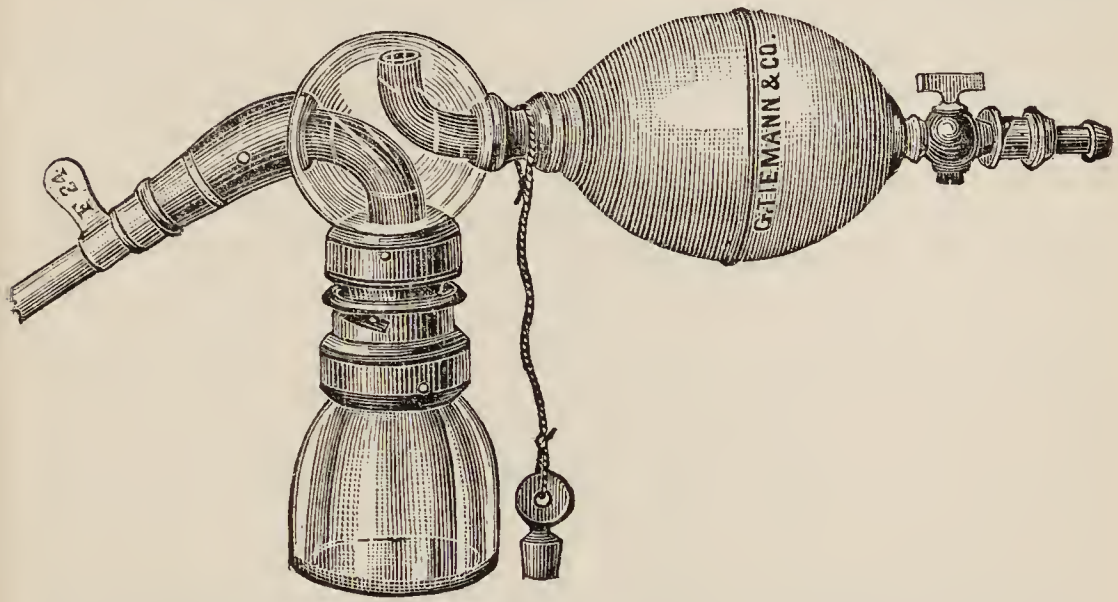
In stout men the difficulty in suturing the bladder, though considerable, is by no means insurmountable, and the points of greatest importance in order to ensure success appear to be: First, to produce a healthy acid condition of the urine before operation by means of rest in bed and the administration of boracic acid internally in from five to ten-grain doses thrice daily for some days before operation; the effect of this drug in clearing up the foul alkaline urine and relieving the cystitis caused by calculus is very marked even in from twelve to twenty-four hours after administration. Secondly, care must be taken to avoid bruising, either by handling or by dissection of the coates of the bladder. Thirdly, the suturing must be done very closely and with very fine silk, care being taken to close both angles of the wound. Fourthly, no catheter should be left in the bladder, and the instrument should be used as little as possible after operation. Finally, the escape of acid normal urine between the stitches during the first twelve hours after operation does not in any way prevent primary union of the wound. —*Lancet, Aug.* 10, 1889, *p.* 260.

70.—THE OTIS "PERFECTED" EVACUATOR.

By Fessenden N. Otis, M.D., New York.

The changes which have been made in the old instrument are as follows:—1. Removal of all stopcocks. 2. Removal of tubing between the bulb and globe, and between the globe and evacuating tube, thus making the instrument more compact and the distance from the bladder to the receiver the shortest possible. 3. Introduction of hard rubber in place of metal wherever possible, giving the utmost lightness. 4. Making the tube apertures in the globe oval instead of round (Dr. W. K. Otis's suggestion), and thus giving the greatest security against their fitting loosely and leaking. 5. Increasing the calibre of the evacuating tube where it enters the globe, thus securing a greater rapidity in delivery.

It is now claimed that this latest evacuator (see figure) presents



The perfected Otis evacuator Holds 8 oz. Weighs 10 oz. empty, 18 oz. filled.

the following advantages over all other instruments now in use:—1. Perfect trapping of all fragments without the use of any form of valves, perforated tubes, or strainers. 2. Shortest possible route of fragments from the bladder to the receiver. 3. Absence of all stopcocks between the bladder and receiver. 4. Ease of filling and perfect control of the amount of water in the bladder during evacuation. 5. Lightness, compactness, power, and facility of manipulation. 6. The fragments being visible from the moment of leaving the tube until removed from the receiver, it can be seen that they do not return to the bladder.

I may state that the original Otis evacuator was manufactured by Messrs. George Tiemann and Co. (surgical instrument makers of New York), who with much pains and skill have aided me in the succeeding changes necessary to bring the instrument finally to its present state of perfection.—*Lancet, Aug.* 21, 1889, *p.* 423.

71.—ON SUPRA-PUBIC PROSTATECTOMY IN CASES OF CHRONIC RETENTION OF URINE FROM PROSTATIC ENLARGEMENT.

By A. F. McGill, F.R.C.S., Professor of Surgery in the Yorkshire College, Surgeon to the Infirmary, Leeds.

I purpose in this paper to exclude all reference to the acute form of retention, and to confine my remarks to that chronic condition which prevents the bladder from thoroughly evacuating its contents, and thus eventuates in chronic retention.

It has been long recognised that the severity of the symptoms in a case of hypertrophy of the prostate bears little or no relation to its apparent size as felt through the rectum, and it is also well known that a considerable number of men, aged 55 and upwards, have prostates of an abnormally large size, though of these only a certain proportion—say 50 per cent.—suffer from urinary symptoms. This strange difference depends on the position at which the organ is enlarged. Prostates of immense size which project towards the rectum and perineum cause no urinary trouble, while severe symptoms may supervene when the prostate on rectal examination is apparently of normal dimensions. In the twenty-four cases upon which this paper is based, there was one characteristic common to all—the enlarged prostate projected into the bladder. There are many varieties of the intravesical growth. We find (1) a projecting middle lobe—pedunculated or sessile; (2) a middle lobe with lateral lobes forming three distinct projections; (3) the lateral lobes alone; (4) a pendunculated growth springing from a lateral lobe; and (5) "a uniform circular projection surrounding the internal orifice of the urethra." This last variety, described by Brodie, has in recent years escaped notice; it is better seen *in situ* than in museum specimens, and is of not infrequent occurrence. It surrounds the urethra like a collar, and projects for a variable distance into the bladder. When the bladder contracts on its contents, the contained fluid is forced on to the projecting prostate, and the urethral orifice is closed. The mechanism is the same—with one exception—whatever may be the variety of the enlargement. Whether there is a middle lobe or lateral lobes, or a collar, the same valve-action occurs; and the more violent the contraction the more complete is the action of the valve. A patient, finding that he is unable to relieve himself, soon ceases his violent efforts, the pressure on the valve is then lessened, the urethral orifice is released, and the urine flows away in a feeble stream. If he attempt to expel it more quickly, the outflow again stops, and it is only after several attempts that he is able to obtain an incomplete relief. A time comes when, though the bladder still contains urine, no more can be forced from it. This residual urine varies much in quantity in different cases, sometimes amounting to a pint or more. Its presence,

and the consequent frequency of micturition, is accounted for by the fact that a more violent contraction of the wall is required to completely than to partially empty the bladder, and that its muscular coat acts to greater advantage, and consequently with greater force in its partially contracted than in its distended condition. This greater force, pressing on the outside of the valve, more completely closes the urethra, and the urine that remains is unable to escape. An exception to the general rule is found in cases with a small sessile middle lobe, situated partly in the bladder, and partly occluding the prostatic urethra. When this is the case, the passage is blocked by the projection, and no valve action occurs. The urine is expelled by a violent contraction, and the bladder wall is much hypertrophied and its cavity contracted.

In many cases self-catheterism is the only treatment required. We have all seen patients who with little discomfort have, by the passage of a catheter, kept themselves in good health, sometimes for years. We would none of us think, under these circumstances, of advising a patient to submit to a radical operation.

Yet not only does catheter treatment fail, but it is not infrequently—especially in hospital patients—unavailable. The patient has suffered from frequency of micturition and general discomfort for some years, and has not sought surgical assistance till from some cause or other complete retention has occurred. The surgeon passes a catheter with difficulty, there is much hemorrhage, the bladder is full of blood, and the patient's life is in jeopardy. If he gets over the acute attack, it is found that he cannot learn to catheterise himself. The constant attendance of a surgeon is impossible, and the catheter treatment cannot consequently be tried. Even in cases where there is apparently no difficulty, it is sometimes impossible to teach a patient to pass a catheter for himself. In these various cases—cases of frequent occurrence—it is plain that a radical operation is required. It is, indeed, absolutely necessary. This treatment, to be effectual, should (1) for a time thoroughly drain the bladder, and (2) permanently remove the cause of the obstruction. It is now some ten or twelve years since perineal drainage was introduced for the relief of cystitis in patients suffering from prostatic breakdown. The relief obtained in this way has been most marked, and the practice is well recognised and established. As soon as efficient drainage is effected the bladder ceases to be a receptacle, urine sweet from the kidneys flows through it, putrefactive changes are prevented, and acute symptoms cease. The relief is, however, only temporary. Either the patient must submit to the discomfort of permanently wearing a urinal, or the artificial fistula must be allowed to close, with the probable result of a recurrence of the symptoms. It is necessary, if we desire permanent relief, that our measures should

be more radical. We have seen that the cause of the mischief is the intravesical prostatic outgrowth, and this outgrowth must consequently be removed. This can only be done by leaving a raw surface in the prostatic region of the bladder, and as mischief would undoubtedly result from stagnant urine accumulating in this position, another and not less important reason for efficient drainage presents itself.

There are three ways in which it is possible to perform a radical operation for the removal of prostatic obstruction—the urethral, the perineal, and the suprapubic. Of these the urethral appears to be in every way unsatisfactory. It is founded on faulty anatomy; it is supposed that the cause of the retention of urine is a bar at the neck of the bladder, and that the division of this bar will effect relief. Out of twenty-four cases only five presented anything resembling a bar, and it is doubtful whether in any case either Mercier's or Bottini's operation could have been practised with a successful result. There are few, if any, cases recorded in which the operation has proved satisfactory; it fulfils neither of the indications which I have stated above to be necessary, and it is, in my opinion, unworthy of further trial.

We must next compare the perineal with the suprapubic operation. I prefer the latter for the following reasons:—

1. It is more generally applicable. Dr. Watson, of Boston, United States, whose valuable monograph on the subject I have had the advantage of reading, has expressed his opinion that the perineal route is to be preferred. He believes it to be clinically safer, and his extensive post-mortem researches make him believe that two-thirds of all cases "could be successfully reached and incised, or partially or wholly removed by anyone possessing an index finger which has a working length of three inches or more." Taking his own figures, it is unwise to commence an operation with the probability of failing in 30 per cent. of the cases. In the other cases mere incision and partial removal of the intravesical growth will, in my opinion, as a general rule, give a very unsatisfactory result. It is, moreover, not advisable to limit the ability to perform an operation to gentlemen with preternaturally long fingers. That the operation is sometimes practicable is shown by a case published by Mr. Reginald Harrison; that it is not usually applicable is shown by my own cases. In only three of the twelve cases on which I have operated, would it have been possible satisfactorily to remove the projecting portions of the prostate by the perineal route.

2. It can be performed with greater precision, and completed with greater certainty. It is, I believe, impossible to diagnose the nature of the intravesical growth till the finger is in the bladder; we may suspect an enlarged middle lobe, but we cannot

be sure that it exists alone. In no way can a bladder be explored with the same completeness as through a suprapubic wound. All projecting portions can be felt with ease, but often are removed with difficulty, a difficulty that has made me certain that attempts at removal through the perineum must often of necessity fail.

3. It ensures complete and most efficient drainage. It may possibly be argued by some that the position of the suprapubic wound will prevent drainage, and that the urine will naturally escape more readily through a dependent perineal wound than through one above the pubes. Experience shows that this is not so. Drainage takes place more easily through the soft abdominal than through the hard perineal tissues. This was shown in a case already published. In a patient with fractured pelvis and ruptured urethra, I opened the bladder above the pubes, and also cut into the infiltrated tissues in the perineum. A tube was passed through the bladder from above and brought out below. On its removal all the urine escaped above, and continued to do so as long as the wound remained unhealed.

4. It is equally safe. While making this assertion it is right to draw attention to the fact that it is merely an opinion and does not rest on a statistical foundation; there being no statistics available for the purpose. In the 24 cases in which the suprapubic operation was performed by my colleagues and myself, the mortality has been lower than might reasonably be expected. All the patients were old men, with three exceptions above 60, while seven were upwards of 70. Almost all were in a bad state of general health, and many were obviously within a few days or weeks of death, unless speedily relieved. Of my own cases, eight would, I believe, undoubtedly if left alone have died in a short time. Among the twenty-four cases there have been four deaths (16.6 per cent.) Of these deaths one was due to shock; two to shock and hemorrhage; and one to retropubic suppuration. This last case is the only one in which the fatal result can be fairly attributed to the suprapubic incision. The presence or absence of a stone in the bladder, as well as the enlarged prostate, does not —as far as these statistics go—influence mortality. There were among the lithotomy cases one death in seven, and among the pure prostatectomies three deaths in seventeen.

It is unnecessary to describe fully the operation of suprapubic prostatectomy, but a few special points about its *technique*, founded on an experience of thirty-seven suprapubic cystotomies of various kinds, may not be out of place.

1. The quantity of water injected into the rectal bag, especially in cases where the prostate is abnormally hard, should be smaller than is usually recommended. In case 12 there was profuse rectal hemorrhage, only stopped with considerable difficulty. In

case 18, there was considerable ecchymosis and abrasion of the mucous membrane of the rectum, and in another case of lithotomy hemorrhage occurred. Each case must be decided on its merits, but six or ten ounces are usually sufficient.

2. The bladder should be irrigated till the antiseptic solution used is perfectly clear. The quantity left in the bladder varies much, from ten to twenty or more ounces. The hand placed on the hypogastrium will show when the distension is sufficient.

3. In cases where the bladder is contracted with thick non-distensible walls, it will usually be inadvisable to perform this operation.

4. It is better to leave a catheter in the bladder till its cavity is opened, as it is a guide that expedites the operation. Care must be taken not to hook the peritoneal fold (superior false ligament) into the wound with the point of the instrument.

5. The linea alba is best divided by incising it immediately above the symphysis, and then dividing upwards on a director.

6. Care must be taken to secure the bladder before proceeding to remove the prostate. This is best done by inserting two sutures through each lip of the wound, and fastening it securely to the deeper part of the abdominal wall. When the operation is completed, a third suture passed through the lower angle of the wound is an additional security against urinary extravasation into the retropubic space.

7. The prostate should be removed as far as possible by enucleation with the finger, and not by cutting. The mucous membrane over the projecting portion having been snipped through, the rest of the operation is completed with finger and forceps. In this way excessive hemorrhage is prevented. A pendunculated middle lobe can, however, be removed by cutting through its base. Hemorrhage is best arrested by irrigation with water so hot as to make it unpleasant for the hand.

8. A large tube should be inserted into the bladder, and the wound united above the tube by a deep and superficial row of sutures. The tube is to be removed in forty-eight hours.

9. The after-treatment consists in keeping the parts clean, and washing the bladder and the wound, in exceptional cases, with a boracic solution.

[Mr. McGill gives a very complete table of twenty-four cases, in which his operation of Supra-pubic Prostatectomy has been performed by himself and the other surgeons to the Leeds Infirmary, but which is here omitted.]

Final results.—In ascertaining the final results in the patients operated on, it is right to exclude all the cases of lithotomy, as it might fairly be urged that any success that ensued was due to the removal of calculi, and not to removal of prostate. Our numbers

are consequently considerably reduced. From the twenty-four cases we must deduct seven cases of lithotomy; four deaths, three directly due to the operation, and one to pneumonia when the patient was convalescent; two cases who are still under treatment; and one who cannot be traced. This makes a total of fourteen cases, leaving ten for whom we must account. Of these ten, eight have continued well, only one of them having required the passage of a catheter, and that only after excessive drinking. In one case the operation was, owing to the extreme hardness of the prostate, most unsatisfactorily completed; suprapubic drainage was accordingly adopted, but with little, if any, relief. In another case death occurred ten months after operation. He was relieved for a time, and then apparently relapsed. He was a patient whose general condition was extremely bad; after returning home his surroundings were of the worst possible description, and he became insane. I particularly draw attention to six cases, in all of whom the prostatic retention was of long standing, and in all of whom the bladder has, since the operation, been able to expel its contents. Sir Henry Thompson, who apparently has not performed—and, at any rate, has not published a case of—suprapubic prostatectomy, says, in his last edition of his *Diseases of the Urinary Organs;* "When it has been necessary to practise habitual catheterism for retention from enlarged prostate for two or more years, the coats of the bladder lose their power, and are incapable, I believe, of regaining it in any case after that lapse of time, and would fail to expel their contents, even supposing the obstruction to be entirely removed. There is good ground for concluding that no operation would restore a *status quo* on account of our inability to restore the expelling function of a bladder which has long ceased to exercise it. It has been recently proposed to open the bladder above the pubes for the purpose of removing salient portions of the prostate in some cases, and what I have just said in reference to advanced cases holds equally good in relation to this procedure. No benefit can result to such." In all the cases mentioned above marked prostatic symptoms had existed for years, and in one case self-catheterism had been practised several times daily for seven years. This last case has never used a catheter since the operation (twenty months ago); he can empty his bladder perfectly, has no pain, and can sleep all night. If the dictum quoted above were true, it would effectually stop all attempts at a radical cure of prostatic hypertrophy; it is, therefore, satisfactory to be able to demonstrate that it is a fallacy founded on a false hypothesis.—*British Medical Journal, October* 19, 1889, *p.* 863.

[See also articles on Supra-pubic Prostatectomy by Mr. Buckston Browne, Mr. Bruce Clarke, Mr. Jordan Lloyd, and Dr. Macewen in the *Synopsis* of this volume of the *Retrospect.*]

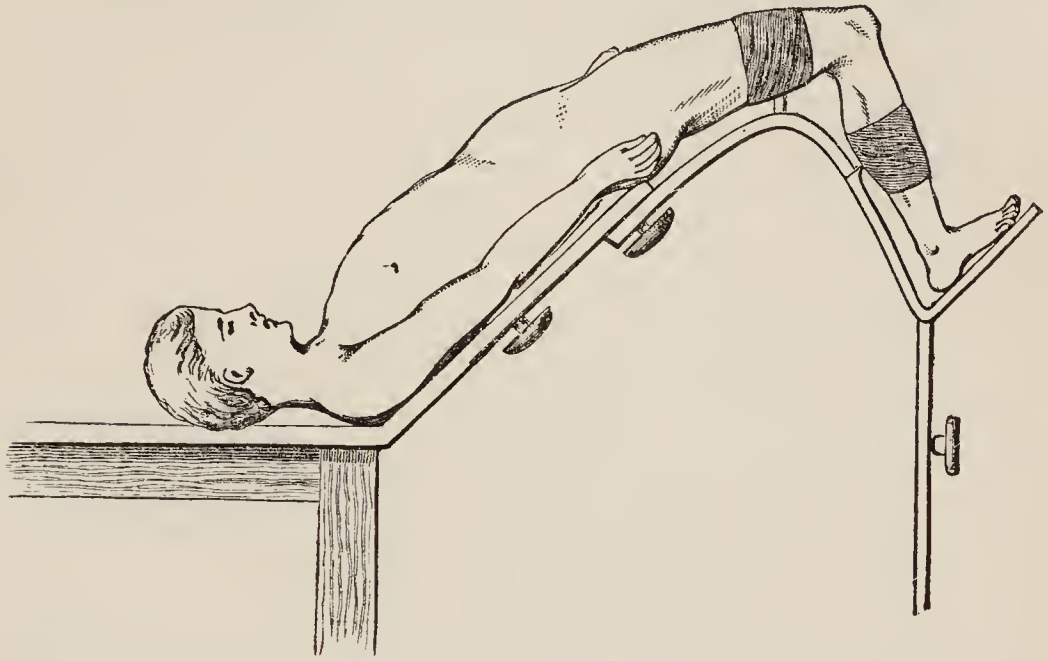
72.—OBSERVATIONS ON THE POSITION OF THE PATIENT IN SUPRA-PUBIC OPERATIONS.

By Professor TRENDELENBURG, M.D., Bonn University.

[In the discussion on Mr. McGill's paper on Supra-pubic Prostatectomy, Dr. Trendelenburg made the following remarks :]

If you will kindly listen to me a few minutes, I will make some short remarks on the most interesting and important paper, for which we all are very much indebted to Mr. McGill. I think it may be of some interest for you to take notice of the method of procedure I adopt in hypogastric section, and which I believe to be advantageous, especially if any further operation in the interior of the bladder is required. The difference in my way of operating from the usual one is in the position of the patient on the operating table. The patient is turned round so that his head is put where his feet used to be. After this he is pulled up by his legs until the nates are situated where the head would be if the patient were in a sitting position, and the legs are held in this position on the shoulders of an attendant, or are fastened to an apparatus applied for the purpose at the upper end of the table. The intestines then by their own weight will fall down towards the diaphragm, and in slender persons a deep groove will be seen in the hypogastric region, produced by the pressure of atmospheric air. As soon as the recti muscles and the deep fascia have been divided by transverse section close to the upper margin of the symphysis, air will rush into the so-called cavum Retzii, the whole space will be opened at once quite freely, and you can easily recognise the anterior wall of the bladder, and the fold of the peritoneum, so you are able to open the bladder quite safely below the fold of the peritoneum. It is quite unnecessary to dilate the rectum by Petersen's bag, and filling the bladder with water is also not of very great importance. I have performed the operation in this way several times, the bladder being quite empty. If it is required to take a tumour out of the bladder, or to do prostatectomy or any other operation in the interior of its cavity, the bladder may be opened in a transverse line, and the edges of the wound of the bladder temporarily fixed to the edges of the wound of the skin by several sutures. Then specula constructed of soft copper are put into the bladder, which have been brought into a convenient shape by pressure of the hand, and the light of the opposite window shining freely into the distended bladder, you may inspect without difficulty the whole interior of it. If more light is wanted a reflecting mirror or a small electric lamp attached to the speculum may be of use. I have here a photograph which will show you how the interior of the bladder is laid open to the eye. It is taken from a body in which I had opened the bladder in the way described. You will easily recognise the point

of the catheter projecting from the internal orifice of the urethra, and also the probes passed into both ureters; in fact, it is possible, and even quite convenient, to operate in this way on vesico-vaginal fistula from the interior of the bladder. I did so with good success in a case of vesico-vaginal uterine fistula, lying close to the right ureter. It was hardly possible to get at it in a proper way from the vagina, and it would have been dangerous to tie the ureter.



The same position of the patient is useful in all cases of laparotomy when you have to deal with operations in the cavity of the pelvis, as in ovariotomy, hysterectomy for fibroid growths, resection of bowel for intestinal fistula, being the result of incarcerated hernia, and so on. The peritoneal cavity being opened, and the tumour of uterus, for instance, having been taken out, you will have a free sight of the whole pelvic cavity; you will easily recognise the ureters; you will see the iliac and hypogastric arteries pulsating below the peritoneum, and so on. If the patient does not vomit, the bowels will never come out through the wound. In taking out the uterine or any large tumour the described position of the patient will be of use, as it is far easier now to get to the pedicle than used to be the case in the common way of operating.—*British Medical Journal, Oct.* 19, 1889, *p.* 871.

73.—ON CAPILLARY DRAINAGE OF THE BLADDER AFTER SUPRAPUBIC CYSTOTOMY.

By Geo. R. Fowler, M.D., Surg. Methodist Epis. Hosp., Brooklyn.

The natural position for an old person (and permanent suprapubic drainage is required oftenest in old men) confined to his bed by any illness is upon the back. Whether he is partly elevated in bed

(half-sitting posture), or whether his head and shoulders are lowered almost or quite to a level with the rest of his body, the result is the same—the base of his bladder remains its lowest part. To place him in any position other than the dorsal or some of its modifications, and attempt to keep him there for any length of time, is to elicit from him constant complaint, and finally inflict upon him cruel torture if the attempt is persisted in.

The thing to be desired is a method of drainage whereby a continuous flow of the contents of the bladder may take place and the patient still maintain any position in which he may be comfortable. At the same time, this should provide against infiltration of urine into the anterior abdominal walls. If the patient lies upon his back and reliance is placed upon tube-drainage, infiltration, to a greater or less extent, will almost inevitably occur; at least, such has been my experience.

In order to overcome these objections and difficulties, I have recently pursued a plan that has given me great satisfaction. The plan is that of capillary drainage, and the method of carrying it out is simplicity itself. I select hygroscopic cheese or butter cloth, and, first sterilizing by heat, dip it in a hot milky mixture of oxide of zinc and distilled water to which a trifle of glycerin has been added. Any sterilized gauze or cotton wicking will answer the purpose without the addition of an antiseptic if changed frequently. Either oxide of zinc, bismuth subnitrate or iodide, or even iodoform if used with caution, will answer as an antiseptic; the non-poisonous and non-irritating qualities of the two first-named, however, render them the most desirable for the purpose. The folded squares of the material selected for the purpose are placed in the hot mixture, which is kept agitated to prevent precipitation. They are then wrung out and packed in air-tight jars (fruit jars), which have likewise been sterilized by exposure to heat. Another plan, and one which I prefer, particularly when the packing is to be intrusted to a nurse, is to have the gauze prepared in strips of the proper width—say about two inches—and rolled up as a roller-bandage. This is dipped in the zinc milk while the latter is being stirred, and then wrung out. This is then unrolled, and at the same time packed in the sterilized fruit jar. (This zinc gauze, prepared in the manner described, I have used for a long time as a general surgical dressing, when such a one is required, in which any antiseptic substance has been incorporated.)

Adopting the plan of Galvani, of Athens, of securing the walls of the bladder by two stout lateral ligature loops for the purpose of identifying the same during the first few days after the operation, or until the structures forming the edges of the wound in the abdominal wall have become consolidated, I retract the parts and pass the end of a strip of gauze into the bladder. By means of a dressing forceps this is carefully carried to and gently packed at

the *bas-fond*. This may complete the procedure, or, in addition to this, the gauze may be fed in and loosely packed, or allowed to adapt itself rather to the cavity of the bladder. The end is allowed to project two or three inches, when the dressing is finished by laying a few folds of the gauze between the edges of the wound. The projecting end of the gauze strip is laid upon a piece of rubber macintosh, which is so disposed as to carry off the urine to a basin placed beside the bed, or a large towel, made into a compress and the end of the gauze drain allowed to rest upon this, will answer the purpose admirably.

Should the fear arise that the suprapubic wound will close prematurely or become too small to allow the strip of gauze to pass readily, the difficulty may be obviated by using a very short rubber drain of rather larger caliber, having a flange to prevent it from slipping into the bladder, or, what answers the purpose equally well, a large safety-pin passed transversely through its walls in such a manner as not to interfere with its lumen, and thus prevent the gauze strip from passing readily through the same. This rubber simply answers the purpose of a thimble, to prevent closure of the wound. The drainage strip is passed through this into the bladder, a towel folded, with a square of macintosh in its folds, and placed in position, the whole being secured in place by means of a binder such as the obstetrician uses after child-birth. With the dressings so arranged the patient may assume any position or even walk about without much inconvenience.

It is useless to attempt to prevent the contact of the urine with the wound in the abdominal wall. It is far better to neutralize the evil effects of this contact by providing uninterrupted drainage and keeping the urine free from irritating qualities by means of an efficient antiseptic than to attempt to place a rubber tube in position and depend upon packing between its outside walls and the wound edges to prevent contact or infiltration. In fact, the latter condition would be somewhat favoured by pursuing such a course.

To sum up, therefore, the method of capillary drainage of the bladder offers the following advantages:—1. It allows the patient to assume any position most comfortable to him. 2. It is not easily displaced, and its action is not interrupted or interfered with by any accidental circumstance, such as sudden movements on the part of the patient, etc. 3. It furnishes an antiseptic to the urine, thereby lessening its irritating qualities, and an antiseptic dressing to the bladder walls and edges of the wound at the same time. 4. It is simple, requiring no elaborate preparations and not depending upon the art of the mechanic. It is effective, as I have proved to my own satisfaction by actual experience. And, above all things in importance, it is conducive to cleanliness in a class of cases in which sensitive patients constantly complain of what they consider a deplorable condition.—*N. Y. Med. Journal, Sept.* 7, 1889, *p.* 257.

74.—ON THE RADICAL CURE OF HYDROCELE BY EXCISION OF THE SAC.

By F. A. Southam, M.B. Oxon., F.R.C.S. Eng., Surgeon to the Manchester Royal Infirmary.

In a paper on the radical cure of hydrocele, which appeared in the *Lancet*, Sept. 10, 1887, (see *Retrospect*, vol. xcvi. p. 294,) I called attention to the method of treatment by excision of the sac, and described several cases in which this plan had been adopted with very satisfactory results. Since that date I have carried out the same treatment in three additional cases, and as these serve to illustrate some of the conditions in which this method of radical cure is indicated, a brief description of each is given below. A full account of the operation will be found in the article referred to, and further experience has shown that in addition to the ordinary measures for maintaining as far as possible an aseptic condition of the wound, the essentials for success are as follows:—1. A healthy condition of the patient. 2. Removal of the whole of the parietal layer of the tunica vaginalis, so that two serous surfaces are not left in apposition. 3. Complete arrest of all hemorrhage before the wound is closed. 4. Free drainage for the first few days. 5. Uniform pressure on the scrotum by means of the dressings, in order to maintain the deep surfaces of the wound in apposition. 6. Elevation of the scrotum during the period of healing. If attention is paid to these points, I believe that the operation is attended with little risk, and also that it is the most certain method of radical cure, it being practically almost impossible for a recurrence of the hydrocle to take place.

Case 1.—*Recurrence of hydrocele with adhesion of testis to anterior layer of tunica vaginalis after tapping and injection with iodine; excision of sac; cure.*—The patient, aged forty-four years, came under my care as an out-patient, suffering from a scrotal swelling, which presented all the appearances of an ordinary vaginal hydrocele, except that the testicle was situated at the anterior part of the tumour, forming a distinct prominence on the front of the scrotum. The hydrocele, which had been present for four or five years, had been tapped several times, and on the last occasion, about four months previously to coming to the hospital, it had also been injected with iodine. He stated that after the injection he was confined to bed for ten days, as the part was extremely painful. As soon as he began to get about, the hydrocele gradually returned, and he noticed that the position of the testicle had altered from the back to the front of the swelling. The patient was admitted into the hospital, and a free incision having been made into the tumour along the outer side of the scrotum, about twelve ounces of clear, yellow fluid escaped. It was then found that the testicle was fixed to the anterior part of

the tunica vaginalis by numerous firm adhesions; these were divided, and the whole of the parietal layer of the tunica vaginalis, which was somewhat thickened, was excised with scissors. The wound was closed with sutures, free drainage being provided for by a tube brought out at the upper and lower ends of the incision; on the eleventh day it was healed, and on the fourteenth day he left the hospital. When last seen, six months after the operation, there was no recurrence of the hydrocele.

Case 2.—Extreme thickening and induration of the tunica vaginalis; excision of sac; cure.—The patient, aged fifty-five years, came to the out-patient room on account of a scrotal swelling, the size of a fist. He stated that it first showed itself about three years previously and that it had been tapped three times, a quantity of clear fluid being drawn off on each occasion. The swelling resembled an ordinary vaginal hydrocele, except that it was much firmer than usual and quite opaque on examination by transmitted light. The history of the case and the conditions just mentioned pointed to the presence of a hydrocele with a thick sac wall, and this opinion was confirmed on exploring the swelling with a hypodermic syringe, a few drops of clear yellow fluid being drawn off. On account of the thickened condition of the sac the case was considered a suitable one for the excision treatment, and the patient was accordingly admitted into the hospital. On laying open the cavity of the tunica vaginalis several ounces of clear yellow fluid escaped. As was expected, the sac wall was found much thickened (measuring from a quarter of an inch to half an inch in thickness), and extremely indurated, cutting almost like cartilage. The whole of the parietal layer was excised, and the wound then closed with sutures, a drainage-tube being inserted. The wound readily healed except at its centre, where several of the sutures cut through, a superficial granulating surface the size of a shilling remaining. This was still unhealed at the end of three weeks, and did not cicatrise until a few weeks later after its margins had been refreshed under cocaine and brought together by three wire sutures. When the patient was last seen, about three months after the operation, there was no return of the hydrocele.

Case. 3.—Suppuration in tunica vaginalis, and sloughing of sac wall after tapping; excision of sac; cure.—The patient, aged fifty-eight years, presented himself at the out-patient room, suffering from a painful fluctuating swelling, the size of a cocoa-nut, involving the left side of the scrotum, the tissues of which were œdematous and inflamed. He stated that he had been troubled with a swelling for about three years, and that it had been tapped eight or nine times. A few days after the last tapping, which had been performed a fortnight previously to coming to the hospital, the scrotum began to swell and become extremely painful. The inflamed condition of the scrotal tissues, the fluctuating nature of

the swelling, and its rapid reappearance after tapping, all pointed to the presence of pus in the cavity of the tunica vaginalis, and the diagnosis was confirmed by an exploratory puncture with a small trochar and cannula. The patient was admitted into the hospital, and a free incision having been made into the swelling, about ten ounces of thick purulent fluid escaped from the cavity of the tunica vaginalis. As the tunica itself was much thickened (being coated over with layers of lymph, and presenting in places a sloughy, almost gangrenous, appearance), the whole of its parietal layer was removed by means of scissors. The cavity, having been washed out with carbolic lotion and dusted with iodoform, was plugged from the bottom with strips of lint dipped in carbolic oil, no attempt being made to close the wound on account of the inflamed condition of the scrotal tissues. It rapidly granulated up from the bottom, and the patient left the hospital at the end of a fortnight with the wound almost healed. When last seen, twelve months subsequently, he was free from any recurrence of the hydrocele, the seat of the operation being marked by a depressed cicatrix.—*Lancet, Oct.* 24, 1889, *p.* 845.

75.—ON INFLAMMATORY DISEASE OF THE SEMINAL VESICLES.

By Jordan Lloyd, M.B., F.R.C.S., Surgeon to the Queen's and Children's Hospitals, Birmingham.

Seminal vesiculitis is usually secondary to mischief in the urethra. It is a common accompaniment of gonorrhœal epididymitis, and originates in a precisely similar manner. When the inflammatory process has crept from the urethra along the common ejaculatory duct to its termination, it is as likely to proceed along the short seminal tube to the vesicle, as along the twenty-four inch vas deferens to the epididymis. I believe it commonly extends along both these structures.

I have seen the vesicles inflame secondarily to urethritis, set up by the passage of a bougie, by the presence of a stricture, and after coitus with a leucorrhœal woman. I have seen both vesicles suppurate in one case where their inflammation appeared to be primary; at least there was no antecedent cause discoverable in the urethra.

When acute inflammation attacks a vesicle it gives rise to a swelling at the side of the base of the bladder, the greater part of which is due rather to effusion of inflammatory products into the perivesicular connective tissue than into the cavity of the vesicle itself, just as we see that in epididymitis the bulk of the enlargement depends upon inflammatory infiltration into the connective tissue between the tubules of the epididymis.

Seminal vesiculitis, like acute epididymitis, most frequently terminates in resolution. It sometimes ends, however, in suppura-

tion, and, when this occurs, pus may make its way laterally into the ischio-rectal fossa, or may diffuse itself deeply around the rectum (constituting one of the varieties of peri-rectal suppuration), or may discharge itself by the ejaculatory duct, or may open either into the bladder or rectum, but never into both cavities together.

The following case is one of suppuration of both seminal vesicles without an antecedent urethritis.

On May 23rd, 1888, I was asked by Dr. Ravenhill, of Bordesley, to see a case of acute prostatic abscess. The patient was a healthy man, aged 30, married, three children, wife again eight months pregnant. He had never had any venereal disease. He felt pain in the rectum about twelve days before, which came on without any known cause. Within forty-eight hours he had difficulty with his water, with frequent desire to micturate and pain at neck of bladder. There was a cloud of mucus in healthy urine. He had no orchitis. With a finger in the rectum I found on the right side a deep-seated, smooth, round, fluctuating swelling, with its longest diameter in the direction of the bowel, and its lower end about one inch and a half from the anal margin. Pressure on this was painful, and gave rise to a desire to micturate. Under chloroform I made a puncture through the perineum, inserting a long-bladed knife about one inch to the right, and in front of the anus, and guided by the finger in the rectum, entered the blade to the depth of two inches, tapping a cavity containing about four drachms of pus. A finger passed through the wound entered a cavity which lay altogether to the right of the middle line, up towards the sides of the pelvis. The cavity was drained, and all symptoms at once disappeared. The wound healed up completely in eight or nine days, and for three or four days he appeared to be perfectly well. He then developed a train of symptoms precisely like those of his former illness, and on June 8th I was asked to see him again. I then found an elongated fluctuating swelling on the left side of the base of the bladder, the right side being perfectly normal. Under chloroform I made a deep puncture in the left side, and entered a cavity as large as a hen's egg, containing thick yellow pus. A finger exploring the cavity found it close to the base of the bladder, and passing upwards so that the finger tip could almost be felt from the left groin above. The cavity was drained, and in two or three weeks had soundly healed.

[Mr. Lloyd refers also to cases recorded by Dr. Smith, Baltimore (*Lancet*, 1872, ii. p. 559); Dr. Ralfe (*Lancet*, 1876, ii. p. 782); Mr. Mitchell Henry and Mr. Cock (*Med. Chir. Trans.*, vol. xxxiii.); and M. Velpeau (*Med. Chir. Rev.*, 1857, i. p. 270.]

The symptoms of vesicular disease are essentially those of vesical irritability—increased frequency of micturition, attended by more or less pain. They are like those of prostatitis, according to Professor Humphry, and consist in uneasiness about the perineum,

painful defæcation, frequent and rather painful micturition or retention, painful emissions at night, bloody semen, persistent gleety discharge, and irritability of the bladder and the sexual organs. Zeissl says that the subjective symptoms differ but little from those of prostatitis; but there is one symptom which belongs exclusively to this disorder, namely, erections are well-nigh constant, and so painful as to constitute priapism. According to Lallemand, Gosselin, and Pitha, involuntary seminal emissions occur.

Objective symptoms are, in my experience, much more reliable, and are easily elicited by careful methodical examination. A finger in the rectum recognises an elongated swelling beyond the prostate, running obliquely upwards and outwards at the side of the base of the bladder. This swelling is made quite evident to the examining finger when a metal bougie is passed into the bladder and moved from side to side across the tumour. I have demonstrated a distended vesicle in this way, and have verified the diagnosis by aspirating seminal fluid through the rectum. The following case illustrates several of the above-mentioned facts:

H. J. T., aged 27, was seen with Dr. Leech; he had been under treatment several months with symptoms of irritability of the bladder. He complained of frequent micturition, twelve or fourteen times daily, and three or four times at night. He was in constant pain referred to the root of the penis; this pain became aggravated as the bladder distended, and subsided again after micturition. The patient was married, and the father of two children, his wife being again eight months pregnant. He had no rectal symptoms of any kind; had had nocturnal emissions at least once a week during the past six months; had been troubled also during this time by too frequent erections. Last intercourse a month ago; pains unaffected by it. Had had pains across loins, more particularly on right side. Had ridden a bicycle for five or six years, and had noticed that the point of the saddle pressed unduly on his perineum and produced a desire to micturate. Urine acid, 1020, free from albumen and deposit; no hæmaturia or urethral discharge at any time. The bladder was sounded negatively, and a finger *per rectum* discovered tenderness at vesical base. A few days later—three days after a nocturnal emission—I gave him chloroform, and carefully explored the bladder with Leiter's endoscope. The mucous membrane looked perfectly healthy in every part. I then passed a finger into the rectum, and could feel an elongated swelling, commencing just beyond the prostate and running upwards and outwards for about three inches. This swelling was fluctuant, smooth, and the rectal wall was movable over it. I then passed a bougie into the bladder, and by combined manipulation between it and the finger I could detect most easily an elongated fluctuating tumour between the two. Aided by a Hilton's speculum I aspirated 2 drachms of characteristic seminal

fluid—leaving much more behind—by puncture through the rectum. Microscopical examination of this fluid showed large, roundish, opaque bodies and numerous motionless spermatozoa. The patient was relieved temporarily of his pains by the operation.

So far as I am aware, this is the first case where the diagnosis of a distended seminal vesicle has been confirmed in this manner. The microscopic examination put the matter beyond dispute. In the absence, then, of all trace of disease in the bladder—and by no other way than by visual inspection with an endoscope can we positively determine this—and in the absence of disease in the rectum, I think we are justified in looking upon the distended vesicle as the cause of this patient's symptoms. Nor are these symptoms difficult to explain. The distended vesicle must produce a certain pressure on the neck of the viscus in the neighbourhood of the trigone, and this pressure excites the frequent desire to micturate. The pain increases as the bladder fills, because the pressure on the vesicle is increased with the distension of the viscus above it. The cause of the distended vesicle is to be found in the obstruction of its outlet; the occurrence of a copious nocturnal emission three days before my examination negatives mere physiological distension. The absence of primary urethral inflammation make it less clear to determine the wherefore of the duct's obstruction, but I think it probable that the pressure of the elongated front of a bicycle saddle may have had an influence upon the most anterior part of the ejaculatory tubes. The patient had noticed that bicycle riding had excited a frequent desire to micturate. Nocturnal emissions and undue erections were both present. The occasional lumbar achings, of which he complained, might be due to the pressure exerted by the distended vesicle on the overlying ureter, damming up as it were for a time the urine in the kidney pelvis.

Gonorrhœal vesiculitis occurs at least in two forms, one mild and the other severe. The mild cases are as common as gonorrhœal epididymitis, and are distinguished by symptoms usually attributed to the neck of the bladder or the prostate, such as deep-seated aching, and sensation of fulness in the perineum; irritability of the bladder with healthy urine, more or less relief to discomfort after micturition; absence of scalding and of urethral discharge, slight increase of troubles during defæcation. With symptoms such as these, a finger passed high up the rectum recognises heat, tenderness, and swelling at the base of the bladder, beyond the position of the prostate, and the diagnosis is in this way very easily made. These mild cases usually subside without any other treatment than that suggested by the gonorrhœa.

The more acute variety is well illustrated by the following case: At the beginning of this year I saw a middle-aged gentleman, who, three weeks before, had had intercourse with a prostitute,

and eight days subsequently began to develop symptoms of an ordinary gonorrhœa. A week later the discharge rapidly lessened in quantity, and he felt deep-seated pain in the perineum. He then consulted his medical attendant, who regarded his condition as one of acute prostatitis, and owing to the large amount of swelling felt about the base of the bladder, my opinion was sought as to whether there was not some deep collection of pus to account for it. The symptoms at this time were micturition every hour; pain constant, increasing as the bladder distended, and being always relieved after micturition. Rectal and vesical tenesmus. Urine neutral and free from mucus, blood, and pus. Temperature slightly raised, defæcation painful. Finger in rectum found the sphincter slightly contracted. Parts about base of bladder swollen and bulging backwards to sacrum and flattening the bowel. Swelling was hard and exquisitely tender, particularly laterally and in the neighbourhood of the seminal vesicles, where there were distinct lateral bulgings: no pain or swelling in scrotum. Under treatment by hot hip baths, leeches to perineum, hot water enemata and morphine suppositories, the symptoms rapidly subsided, and three weeks later he was well enough to go to the sea.

There are many other interesting facts relating to inflammations of the deep urethra and its connections, to which I should like to call attention, but the time allowed for my paper is already exceeded. The conclusions I am led to by my present experience are as follows:—1. That inflammatory disorders of the seminal vesicles and their ducts are not uncommon. 2. That they are in many respects analogous to inflammatory diseases of the Fallopian tubes in women. 3. That while occurring sometimes primarily, they are as a rule secondary to inflammation of the urethra. 4. That the ejaculatory ducts may become obstructed, and the seminal vesicles consequently hyper-distended. 5. That termination by suppuration is exceptional. 6. That when suppuration occurs it should be dealt with by incision from the perineum rather than from the rectum. 7. That gonorrhœa is by far their most common originator. 8. That they are frequently concomitant with gonorrhœal epididymitis. 9. That they are usually diagnosed as inflammation of the prostate or neck of the bladder. 10. That while certain subjective phenomena are suggestive of these disorders, their diagnosis can only be made by objective examination from the rectum and bladder.

Since my attention has been particularly directed to this class of diseases, I have been struck by the frequency of their occurrence, and although my paper falls short of what I could have wished, and will not contribute much to our stock of knowledge, I venture to hope that it may direct the attention of practitioners to a class of disorders which have hitherto received too little attention.—*British Med. Journal, April* 20, 1889, *p.* 882.

AFFECTIONS OF THE SKIN, ETC.

76.—ON TRICHOMYCOSIS NODOSA: A BACILLARY DISEASE OF THE HAIR OF THE SCROTUM AND AXILLA.

By R. Glasgow Patteson, B.A., M.B., late Surgical Travelling Prizeman, University of Dublin.

Definition.—A peculiar condition, generally nodose in character, affecting the hair of the axilla and scrotum, and due to the growth and encapsulation in the cortical layers of the shaft of a small rod-shaped bacterium.

History.—To many observers it has long been a familiar fact that the hairs of the armpits and scrotum are liable to a peculiar affection which is not known to attack the hairs of any other part of the body, which seems to find only here the conditions of warmth and moisture necessary for its development, and the cause of which, though long suspected to be mycotic in nature, has hitherto succeeded in eluding the various methods of research employed. Although the descriptive accounts which have been published differ slightly from one another and from that which will be subsequently given, yet I have no doubt that these all in reality refer to the same condition, and that the appearances of the disease are merely in certain cases modified by the health and habits of the individual, and by the variations of warmth and moisture to which the organism is exposed.

[Dr. Patteson's references to previous descriptions of the disease, and to some bacteriological observations, are here omitted.]

Macroscopic Appearances.—To the naked eye the hairs present an abnormally dry and dull appearance, and feel rough and knotted to the touch. Instead of presenting a smooth and lustrous surface they look as if steamed. In fact, the difference to sight and touch between the healthy and the diseased hair is the difference between polished and ground glass. On examining the hair against the light, or, better, with a simple lens, the roughness is seen to be due to the projection from the sides of the shaft of numerous very minute concretions, which may assume either of two forms, a nodular or a diffuse. The diffuse form may extend along the shaft for nearly its whole length with only narrow intervals of healthy hair, while the nodular form consists of small rounded masses, generally most thickly placed in the outer part (terminal third) of the shaft, and usually separated by considerable intervals of healthy hair. Both forms may not uncommonly be found in a single hair, the degree present being only a question of the stage of the process. These masses are firmly adherent, cannot be removed by forcible rubbing, and can only be scraped off with great difficulty and injury to the hair. The hairs cannot be said to be abnormally brittle, do not give way on being pulled out, have

little tendency to break at these nodes, and, as a rule, end in fine, lanugo-like points beyond the limits of the disease. Occasionally, however, hairs are met with in which fracture has occurred through a node, and then the terminal point with the splitting and separation of the fibres, looks, under the microscope, like a bundle of bristles stuck into a ball of jelly. The disease may affect any part of the hair-shaft, but the "seat of election" is the middle third. Nodes are seldom found well-developed except on the peripheral parts of the hair; and when the disease travels high up the shaft towards the bulb, it always assumes the diffuse form. Under no circumstances does it ever penetrate into the hair follicle.

Microscopic Appearances.—The progressive character of the affection, from the peripheral end of the shaft towards its exit from the hair follicles, is sufficiently accounted for by the natural history of the disease. The bacilli journeying, as it were, from the outer world, travel up the shaft of the hair until they find a part sufficiently developed to supply them with the necessaries of life. Here they begin their attack, and here the nodes are closely aggregated, sometimes completely obscuring the shaft, but never losing their nodular character. From about the junction of the outer and middle thirds the nodes are separated by longer intervals, or in more advanced cases the disease may here assume the diffuse form, gradually disappearing as the hair follicle is approached. In these parts which have been last attacked the first stages of the development of the bacilli can be well seen. Out of about fifty hairs examined, only in a few was any marked deviation from this typical arrangement to be found. We are therefore justified in concluding that the micro-organism is one always derived from external sources, and never under any conditions making its habitat in the hair follicles or sebaceous glands. This agrees with an observation of Dr. Crocker, who, in one of his cases, excised a portion of skin, and found the hair follicles and their appendages perfectly healthy.

I come now to speak of the formation of the nodes. The bacilli lie altogether in the cortex of the shaft, and do not penetrate deeply into the hair. The maceration caused by the moisture and warmth of the parts where alone this affection is found (axillæ and scrotum) loosens the epidermal scales and allows an entrance to be thus effected by the bacilli into the parts beneath. This is well seen in those parts where the affection is still in an early stage. The bacilli burrow into the hair, lying at first in small pits or depressions on its surface, and as they develop, the pressure of their growth causes a longitudinal splitting of the cortical fibres which finally leads to their rupture and the curling up of the separated ends. At the same time takes place the formation of the hard, homogeneous, or slightly granular substance which lies between and around the bacteria, as it were encapsuling them, and

forming the surface projections or nodes. Into these masses the curled ends of the ruptured fibres can, in unstained specimens, be seen projecting. (See Fig. 1.) This also serves as a splint, supporting the shaft at these weakened points, and thus explaining the slight tendency there is to fracture of the hair. The material which is thus thrown out is exactly similar in appearance to that with which pediculi fasten their ova to the hairs. It is extremely hard, is insoluble in such solvents as alcohol, ether, chloroform, benzol, benzin, and spirits of turpentine; and resists the action of strong acid and alkaline solutions. It is in the natural state of a pale yellowish colour, and stains a deep brown with iodine and a dark purple with methyl-violet. On account of this affinity for the latter dye it is, as a rule, only possible to see the bacilli at the outer edges of the nodes where they blend with the shaft, and in those places where they are just effecting an entrance into the cortex, as the treatment required to decolorise the nodes also decolorises the bacilli. The nodular form is rarely observed on the hairs of the scrotum, and then only in a slight degree. Very often in this situation no outlying masses are formed, but the whole extent of the shaft is burrowed superficially by bacteria, presenting a most peculiar worm-eaten appearance. In other cases the concretions are placed laterally, with little or no intervening healthy hair, resembling, as Dr. Crocker suggests, "the feather end of an arrow."

Fig. 1.—Hair from axilla affected with trichomycosis nodosa, showing splitting of cortical fibres and transparent homogeneous nodes. × 50.

The Bacilli.—The bacilli are short fine rods with slightly rounded ends, about two to three times as long as broad, and about one-fourth the diameter of a red blood corpuscle. They stain readily with any of the aniline dyes, but are best seen when stained by Gram's method. Examined in a hanging drop they are found to be non-motile, exhibiting only Brownian or molecular movement. They are sometimes joined two or three together, but seldom form longer threads, though this may be accounted for by the forcible manipulation required to isolate them from the substance by which they are surrounded. The accompanying illustrations show the appearance presented by them at the margin of a node (Fig. 2), also their form when isolated and more highly magnified (Fig. 3).

Cultivation Experiments.—Attempts were first made to grow the bacilli on sterilised potatoes, both at ordinary and body temperature, but without success. At the end of a week no sign of growth could be detected, and a cover-glass preparation made from a scraping of the cut surface of the potato showed only

starch granules and a few dead bacteria. Inoculations of tubes of peptone-gelatine also yielded negative results, the gelatine remaining perfectly transparent after many days. As the reaction of the axilla was acid, acidulation of the gelatine was also tried, but without avail. It is therefore evident that the ordinary methods of culture do not supply the conditions necessary for the growth of the microbe, and that experiments must be undertaken in various media and under varying conditions of temperature, moisture, etc., before success can be hoped for. These I hope to have further opportunities of carrying out.

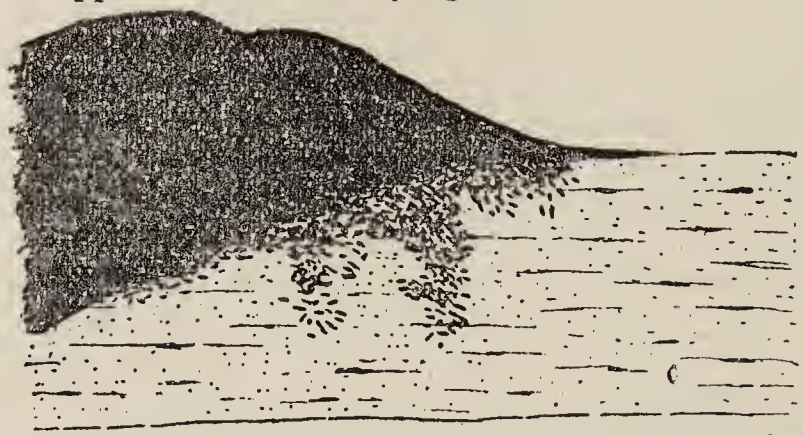


Fig. 2.—Bacilli from margin of node in trichomycosis nodosa. Gram's method, $\frac{1}{12}$ oil immersion.

Fig. 3.—Trichomycosis nodosa. Cover-glass preparation of bacilli from hair. Fuchsin staining, × 1,500.

Nomenclature.—In concluding, it is only necessary to add that the name "lepothrix," conveying as it does a false idea of the

pathological condition present, has been discarded, and that of "trichomycosis nodosa" substituted; the first term to indicate the bacterial origin of the disease, and the second to indicate its most prominent characteristic, and the one which, when present, usually leads to its recognition.—*Brit. Med. Jour., May* 25, *p.* 1166.

77.—ON THE USE OF ETHYLATE OF SODIUM IN THE TREATMENT OF HYPERTRICHOSIS.

By Arthur Jamison, M.D., C.M., London.

The removal of superfluous hair from the face is often a matter of great difficulty, and not unfrequently very unsuccessful. The hair will grow again in a provokingly persistent manner, and if too energetic treatment be adopted, a permanent disfigurement often remains to remind the practitioner of his too great diligence. I wish therefore to suggest a plan of treatment which I have found very successful in suitable cases for the removal of hypertrichosis, and I will briefly give details of an extreme case, occurring in an infant three months old.

The whole right half of her forehead was covered, closely covered, with an overgrowth of long dark hair; some of the hairs being fully an inch long. The adventitious hair grew over the right eyebrow and eyelid, extended thence across the nose to the margin of the left eyebrow, and, upwards, a little to the left of the middle line, to the margin of the hairy scalp. On the outer side it grew in a line from the external angle of the right eye to a little above the meatus of the right ear. The child's appearance was, as far as that side of her face was concerned, exactly like that of a Skye terrier. I deferred doing anything till the child was three months old, and in the interval thought over a good many of the plans advised to remove superfluous hair from the skin. I thought them all inapplicable in this case, and finally resolved to risk the trial of the one I now venture to suggest.

When applying sodium ethylate for the removal of nævi, I had noticed that when the nævus was near the hairy portion of the scalp, if any of it were let to run around its base, the effect was a loss of hair where the ethylate had touched. I tried the effect of the ethylate on several small hairy moles, and, finding the results to have been very satisfactory, I determined to try it in this instance. Accordingly the child was put very fully under the influence of chloroform, the long hair cut short in a vertical line down the forehead for the width of an inch, and sodium ethylate rubbed over the surface very freely and thoroughly, till the skin had an orange appearance. By the time the child had slept off the effects of the chloroform, the pain of the application had ceased, so that the child was fairly comfortable. A little cold cream was then applied.

At the end of a fortnight the result of this first attempt was seen, and most satisfactory it was. The hair-follicles over the greater part of where the application had been made seemed destroyed, and a whitish skin remained. Curiously enough here and there some long hairs remained uninjured. At the end of a month I tried again, but this time I attacked the surface of the forehead from the eyebrow upwards, leaving the hairs of the eyebrow alone. The result was the same. Next time I applied the caustic from the margin of the eyebrow to the ear. Then I waited some time to see the result. When the child was a year old the forehead was fairly clear of hair; but the eyebrow and eyelid were still covered with long hair, and that from the eyelid was growing over the eye. I now very carefully applied the ethylate over the eyelid. There was, as might have been anticipated, a good deal of subsequent œdema of the lid, but it all passed off very nicely. The eyebrow now remained, and this I very lightly rubbed over with the ethylate, but this slighter application seemed to have no effect. A second attempt however was more successful, for whilst it did not destroy the hairs entirely, a new growth of weaker, shorter, and much finer hair sprung up. The subsequent progress of the case was slow. It consisted in touching from time to time the hair-follicles that had not been fully destroyed by the previous applications. The child, a healthy girl, is now over six years old, and the second illustration, which is from a recent photograph, shows her present appearance. Her mother writes to me that there is now no disfigurement, the skin hairless, smooth, and nice-looking, but I think the picture speaks for itself.

I wish to add, in conclusion, my conviction of the superiority of sodium ethylate in the treatment of hairy moles over any other method of treatment. That by electrolysis is often painful, always tedious, and only applicable for limited hypertrichosis, such as that on the lips or chin. In the case of moles where we want not only to remove hairs but also the discoloration of the skin as well, the use of the ethylate has given me better results than the application of any other agent.—*Practitioner, July* 1889, *p.* 1.

78.—ON THE USE OF ARSENIC IN BULLOUS DISEASES OF THE SKIN, ESPECIALLY IN CHILDREN.

By L. Duncan Bulkley, M.D., New York.

It is not the purpose of the present paper to enter into the general subject of the use and value of arsenic in the treatment of diseases of the skin, nor to dwell on the necessity of an absolutely correct diagnosis and sound therapeutical indications in its administration. The aim of the present communication is to call especial attention to the undoubted and almost specific action of arsenic in one certain

form or variety of skin disease, and to place on record a few cases illustrative of the same; also further to show not only the harmlessness but the value of frequently repeated and seemingly large doses of the drug in proper cases, especially in children.

The most notable and striking of all bullous diseases, in which arsenic seems at times to exert almost a specific influence, is pemphigus vulgaris. My attention was first called to the value of efficient doses of arsenic in this affection by the writings of that brilliant, versatile, and indefatigable worker, Mr. Jonathan Hutchinson, who, in 1854, reported a number of cases of pemphigus, some of which had been treated successfully with arsenic; this report was followed by subsequent records of cases by himself and others. In 1877 the present writer reviewed the literature of the subject and reported on five cases of pemphigus treated successfully with arsenic in free doses, in one of which cases the drug had twice appeared to save life.

[The narratives of Dr. Bulkley's cases referred to are omitted.]

Occasionally during the course of eczema, especially in elderly people, the nature of the process will appear to be changed, and lesions of a pemphigoid character will occur which may prove very distressing. These will continue to be formed in spite of the ordinary treatment employed for eczema, but will be found to yield promptly to the free use of arsenic alone. Arsenic is also found to be of very great service in controlling the bullous eruptions sometimes excited by the internal use of iodide and bromide salts, especially those of potassium.

On reviewing my cases I have found that arsenic has proved of signal advantage in several different forms or conditions of bullous eruption, occurring in patients of both sexes and of very diverse ages; the oldest patient was seventy-seven years and the youngest three years of age; four of the patients were males and five females. There is seen to be little in common in these cases except the fact that each of them presented bullæ, and that they were mostly of a chronic character, with repeated accessions of eruption until checked by the action of the arsenic. Of three adults with true pemphigus, two died; but in these instances the drug was commenced very late in the disease, and one of them died, probably from tubercular lung trouble. From the manner in which the remedy controlled the eruption and benefited the patient's condition, from the results in the other cases of pemphigus previously referred to, and from what has been reported by others, there is little doubt but that in efficient doses, with proper adjuvants occasionally, arsenic may be counted on as a specific in pemphigus.

It is especially, however, with regard to its free administration in children, in proper cases, that particular attention is drawn at the present time. Children bear arsenic remarkably well, and, although I have given it freely in a very considerable number of

cases, both such as these and in eczema, I have never seen untoward results, or any which caused me uneasiness. As a rule, arsenic acts with them as a purgative before it manifests its other physiological effects, and it may generally be safely given in bullous eruptions in increasing doses; if the disease does not yield, until it purges; then the dose should be slackened to a point where it is perfectly borne. In many cases, of course, its effect will be more or less increased by the proper use of such other measures of diet and medication as circumstances may indicate; in the first case of a child here mentioned, castor-oil was given, and afterward the hypophosphites were added; and in the last child it was necessary to give occasional doses of calomel, and also an alkali and rhubarb and soda, and finally an iron-and-arsenic tonic; but in each instance it was the arsenic, used independently and in relatively large and frequent doses, which alone checked and controlled the eruption, while in the second case only arsenic was used from first to last.

In regard to the mode of action of the arsenic, it has to be acknowledged that we know little or nothing in reference to the manner in which it operates in controlling the disease. To say that these lesions are neurotic in character and that the arsenic acts through the agency of the nerves, as it is beneficial in chorea and neuralgia, is only bringing the question one point nearer and not answering it completely. Writing upon this subject some time ago, Mr. Hutchinson uses the following language, which expresses briefly about all we now know of the matter: "Arsenic does not merely repress the eruption, but remedies the unknown constitutional causes on which that symptom depends, always very much benefiting the general health of the patient. Arsenic does not prevent the liability to subsequent attacks, but such attacks are always much less severe than the original one, and tend, if treated by the same remedy, to diminish in intensity on each successive occasion."

A single word may be added in regard to the mode of administration of the arsenic. The preparation used in all these cases was either the arsenite of potassium or the arseniate of sodium in solution. These are undoubtedly the most appropriate preparations, and are those most commonly employed. It is well to prescribe them diluted with a definite quantity of water, both in order that the increasing dose may be more gradually augmented, and that there may be a lessened chance of error in dropping out each dose. In giving the remedy every two hours it very often or generally comes apart from a meal; it is necessary, therefore, to direct that the dose be administered in a considerable quantity of water—at least a third of a tumberful. It is often better borne by the stomach when it is given in Vichy water, which is often also otherwise indicated in these bullous affections.—*New York Medical Journal, April* 18, 1889, *p.* 401.

79.—NOTES OF A CASE OF SCLEREMA NEONATORUM.

By Alfred G. Barrs, M.D., M.R.C.P., Assistant Physician to the General Infirmary at Leeds.

On March 6th, 1888, A. Y., aged 1 month, apparently in good health, was brought to me for an intense livid redness of the nates, corresponding pretty much to the surface covered by her napkin, and extending downwards well into the popliteal spaces. The surface, which was uniformly affected, was dry and polished, and the redness disappeared to a great extent on pressure. The appearances were obviously not due to any eczematous condition. The lower limits of the condition tailed off into papules of varying size, which had not the same characters as the general body of the disease. Looked at more closely, the change was seen to affect the parts limited above by the iliac crests; below by the lower borders of the popliteal spaces, and laterally by the line of the ilio-tibial band. Over the whole of this area the skin and subcutaneous tissue, and it almost seemed the still deeper parts, felt as though infiltrated and welded together by some solid material, producing a very close resemblance both in colour and consistency to that of an uncooked ham. The firmest pressure produced not the slightest pitting. The pudenda were not affected. The cleft of the nates had been reduced to a mere line by the mutual pressure of the two sides, converting its naturally rounded surface into a sharp rectangle. It was quite impossible to separate the skin from the subjacent parts at any point in the affected area. One or two isolated patches of a precisely similar nature were found in the right deltoid region. There was nothing in the family history, or in the child's condition, to suggest syphilis or any diathetic or local cause for the disorder. The mother stated that the condition had been first noticed on the fourth day after birth (though it might have been there earlier) on the back of each thigh, just above the popliteal space, and had gradually spread till it had attained the limits above described in the course of about ten days, since which time it had been stationary or nearly so. I ordered the parts to be protected as much as possible from any excoriation by the napkin and excretions, and half a grain of grey powder to be administered night and morning.

On March 13th, the redness was a little less marked, the surface was still dry and polished, and except that there was only a slight disappearance of the condition at its lower part, the brawny state continued the same in character and distribution. The child's general condition continued to be quite good.

On March 20th, the child was growing and thriving, and was clearly not in the least affected by the local condition. The hardness was disappearing, its margins retiring towards the centres of the buttocks. The redness was much less.

On April 3rd the condition had almost entirely disappeared, and on May 1st the child was reported to be quite well in every way.

I have very little doubt that this case was an example of the condition known as sclerema neonatorum, as distinguished from œdema neonatorum,both of which are exceedingly curious and rare disorders. The case related would appear to be exceptional, in that the lesion was limited to the lower parts of the body, and in the ultimate recovery of the child. I may mention that a medical man who happened to be present when I was seeing the case said he had seen a precisely similar condition, though he had not recognised its nature, in a newly born infant, terminating fatally by rapidly involving the whole body.—*British Medical Journal, May* 4, 1889, *p.* 994.

80.—ON THREE CASES OF XERODERMA PIGMENTOSUM, OR DERMATOSIS KAPOSI.

By W. Brown Hunter, M.D., Londonderry.

In the British Medical Journal for June 8th there is a typical case of this disease well recorded by Dr. McCall Anderson. In a note to that report it is said that there are only forty-one cases of this disease recorded. I write this report chiefly for the purpose of adding three more cases to that record. Two of these cases, which I have seen, are certainly typical. The third case (No. 1), which I did not see, was a brother of these, who is now dead, but for reasons given below its identity is undoubted. The family in which these cases occurred consists of eight children altogether, two of whom are dead, one a girl at the age of $2\frac{1}{2}$ years, who was unaffected with the disease, and a boy aged 18 when he died, who was the eldest of the family and was affected. The other six children are alive—three boys and three girls. The girls' ages are 19, 7, and 5 respectively, and are all quite free of the disease. The boy who is unaffected is 12 years and 6 months. I mention the ages of these so that it may be seen that they have got past the age safely at which the disease generally, though not invariably, begins to be noticed. It will also be observed that in this family it has as yet obeyed the general law of keeping to the sex first attacked. The family, too, are agricultural, and much exposed to all weathers. The parents are well, and have always been healthy, and no members of the family on either side have ever been known to be affected by any such disease as this. The mother also mentions that the parts affected seem to get worse in the summer and harvest, and clear up a little again during the winter.

I shall now give a short description of each case:—

Case 1.—H. J. C., aged 18 when he died. He was the eldest in this family, and is said to have died of "a wasting away"—most

probably phthisis, as he had a cough, and, near his end, diarrhœa. He is said, by parents, relatives, photographer who also took his likeness, and by everyone who saw him, that he was affected in the same way as his two brothers now living are, that at an early age the freckles were noticed, and the disease assumed all the appearances which we see in these living cases, so that there can be no doubt of the identity of the affection.

Case 2.—C. C., aged 17, health good in every respect. At the age of 4, freckles numerous and dark-coloured were noticed coming out on his face, and since that time to the present, his face, neck, hands, forearms up to elbows, have been affected. On examining the legs and feet they are also found to be affected, though not so observable, and were said not to be affected. I first saw him about three years ago, observing the peculiar discoloration of his face. About two years ago he came to me complaining of a sore on his right cheek. This sore was almost as large as a shilling, lupus-like in appearance, with large flabby granulations on surface, edges slightly raised and quite round. His mother says it arose out of a pimple being opened by a knife and grew rapidly. I burned it with strong nitric acid, and afterwards treated it with a powder of boracic acid and iodoform. It healed completely, leaving a cicatrix with a black spot in its centre. This is the only ulcer which has as yet formed. His face presents now—first, the freckles, some larger than others, and measuring in longest diameter 4 millimètres; secondly, the small hard nodular bodies; thirdly, a few red small vascular spots (telangiectasis); and, fourthly, the white cicatricial-like spots, which vary in size. These are more marked over the bridge of the nose and below the eyes; in fact, nearly all the surface in these localities is thus affected. In consequence, I presume, he suffers also from ectropion and some conjunctivitis. His lips are also swollen and prominent, especially the upper, rough on the surface, and a hard scab is formed on the upper at one spot. There is a small black spot the size of split-pea on the forehead and one or two on the cheeks, but smaller.

Case 3.—J. C., aged 10, in good health. Disease first noticed at the age of 5. The freckles in this case are very abundant and the pigmentation very noticeable. Same parts affected as those of brother. Feet and legs still less marked. It may be remarked here that these children went to school during the summer months without shoes or stockings, and the trousers often rolled up. The latter is done so as not to interfere with running or jumping, and in wet weather to keep them (the trousers) clean. This is a common habit in the country districts, and thus, in these cases, the feet and legs which are affected were also exposed. His face also presents the small nodules, a good number of the telangiectases, and some of them raised. There is only one cicatricial-like

spot, and this is on the middle of the nose, where the skin looks whitish and thinned. He has also some conjunctivitis, but no ectropion. On the lower left eyelid there is a hard warty growth, the size of a pea, chalazion-like, but wants the characteristics of the latter. The boy who died had a similar growth, the mother now tells me.—*British Med. Journal, July* 13, 1889, *p.* 69.

81.—MICROSCOPIC EXAMINATION OF LUPUS VULGARIS AND ITS RELATION TO TUBERCULOSIS.—TREATMENT.

By H. Gilbert Barling, M.B., F.R.C.S., Birmingham.

[Mr. Barling has examined microscopically specimens taken from eight different cases of Lupus Vulgaris, and has found the tubercle bacillus in three of them. In one patient the lupus was associated with general tuberculosis, in three of the others with a chronic lesion of gland or bone, which was probably also tuberculous.]

Those who hold that lupus is not tubercle of the skin point to the difference between it and tuberculous ulcers of the skin, such as may occur after accidental inoculation, or idiopathically. It is true that lupus is slower in its progress, has more tendency to cicatrise, is not commonly associated with other tuberculous affections, and that very few bacilli can as a rule be found in it; but all these are differences of degree and not of kind, as in each affection the histology is much the same. We find similar differences in the lung between those acute cases of miliary tubercle in which the whole system is rapidly infected and death produced in a few weeks, and other cases of chronic phthisis, with cavities healed in one place, active in another, and the whole lung enormously fibrosed; yet each is an example of tuberculosis involving the lung, but presenting marked differences in the naked-eye appearances, in the number of bacilli present, and in the clinical history. In tuberculosis of bone and of glands the disease varies greatly in its acuteness, and consequently in the appearances presented, and in the course it runs. In a majority of cases the disease remains localised, yet all of us are familiar with small foci of tuberculous disease in bone suddenly producing general infection of the system, as in caries of the tarsal bones, or hip-joint disease.

So it appears to be with lupus, though this is not generally recognised; mainly, I think, because attention has not been directed to the point. My eighth case is of great interest in this connection. Another of much importance is described by Mr. H. H. Clutton. A girl with tuberculous ulceration of the palate and pharynx suffered an extension of the morbid process to the face, where it presented the ordinary appearance of lupus: the patient died with ordinary tuberculosis of the lungs. M. E. Besnier, who has paid much attention to the question of the association of lupus with other tuberculous manifestations, found them co-existing

eight times in thirty-eight cases. Doutrelepont has also published a case in which tuberculous meningitis supervened upon lupus. It is most probable, then, that lupus occasionally holds the relationship to general tuberculosis of cause to effect, though only rarely; and we may conclude also that the tuberculous process in the skin is slow and of low infective power. The explanation of this may be found in the method by which the skin becomes infected, in the hindrances to the growth of the bacillus in this tissue, and in the power of resistance in the patients affected. Looking to the large proportion of patients in whom lupus attacks exposed parts, especially the face, it is most probable that the skin is inoculated directly with bacilli, and not through the circulation. The portals of entrance may be abrasions of the skin or the mouths of hair-follicles and sebaceous or sweat-glands. That these natural openings admit the organisms concerned in acute suppuration there is abundant clinical and experimental evidence to prove. So far as I am aware no attempt has been made experimentally so to infect with the tubercle-bacillus, but it would be interesting to know the result of rubbing a cultivation of this parasite into the skin of guinea-pigs. The two organisms, the *Staphylococcus pyogenes* and the *Bacillus tuberculosis*, have this in common, that neither appears to have motile power, so each would be dependent on an external force for its lodgment.

This question of the means by which the tubercle-bacillus obtains access to the skin has another important bearing. If it enters by the path I have suggested only very few of the bacilli are likely to find entrance together, possibly only a single organism at any one time. Now it is pretty well determined that in animals of equal resistance the local and general effects of pathogenic organisms, introduced by inoculation, depend upon the number of the organisms inserted; if very few they may not develop at all, being destroyed by the resistance of the tissue-cells; if in somewhat greater numbers, there may be local manifestations of disease only; if in much larger numbers, then both local and general results follow; and there is no reason to believe that the tubercle-bacillus differs from others in this respect.

The skin is an unfavourable *habitat* for the tubercle-bacillus, which requires for its luxuriant growth a temperature of 99° F. and will not develop at all at a temperature of about 84° F. The higher temperature is commonly absent in the skin of exposed parts, where lupus oftenest exists, and the lower temperature, or something approximating to it, is often present in the corium. To the few bacilli entering the skin, therefore, and to the low temperature of the part, I attribute the chronicity of lupus, the rarity with which it produces general infection, and the scarcity of the bacilli. In some of my cases the more numerous bacilli and the general infection of system probably depended upon diminished

tissue-resistance, always a most important factor in the development of micro-organisms.

The experimental investigation of lupus strongly confirms the idea that it is in reality a tuberculosis of the skin. Koch, Martin, Cornil, Leloir, and others have succeeded in producing tuberculosis by inoculating with lupus-tissue. Koch used guinea-pigs and rabbits; the former were infected by subcutaneous inoculation, the latter through the anterior chamber of the eye. The bacillus has also been cultivated from lupus; it was indistinguishable from the bacillus obtained from other tuberculous products, and was just as active in producing the disease when used for inoculation. Objection has been raised against this experimental proof, namely, that lupus, or its bacilli, when inoculated into the skin never produces a local disease like lupus, but general tuberculosis only. Eve, however, has twice succeeded in producing in rabbits a disease which closely resembled lupus, and which eventually healed without producing any further mischief. From the same lupus-tissue he was able to produce general tuberculosis in guinea-pigs and a local lupus-lesion in rabbits, the difference in the results depending upon the different susceptibility of the two animals to tuberculosis, the guinea-pig being the most sensitive animal known.

The subject of treatment will not detain me long. Here, as in other cases, the "theory" of the disease is certain to have some influence on its treatment. So long as any disease, cancer, for instance, is regarded simply as the local expression of a constitutional diathesis, so long will the local treatment be carried out in a half-hearted manner. I do not forget the benefits sometimes obtained from the use of ethylate of sodium, salicylic acid, or the solid nitrate of silver: I only wish to remind you that a considerable number of cases are not cured by these, nor even by scraping with Volkmann's spoon. We all of us must have had cases in which repeated attacks with the scraper and the actual cautery have been needed before the lupus was eventually cured, and we have had to deplore the wretched deformity arising. With me it has become a question whether we ought not in a recurring lupus to make a clean excision of the skin affected. I have at present under observation two cases; each of them has some half-dozen times had the lupus erased and subsequently cauterised with Paquelin's instrument; in each the disease is not quite put an end to, and in addition to the unsightly scar-tissue on the face there is considerable eversion of the lower eyelid. In similar cases in future, whether on nose or cheek, if thorough erasion once fails, I shall excise the diseased tissue, and endeavour to repair the breach by plastic operation before the gap has healed over, hoping thus to cure the lupus and to prevent some of the deformity which is so apt to occur. In four cases of lupus not affecting the face I have excised the patch with a healthy margin

of skin all round, taking care to remove not only the true skin, but practically all the subcutaneous fatty layer, and in neither case has there been any return.—*Practitioner, June* 1889, *p.* 429.

82.—ON THE USE OF ICHTHYOL AND RESORCIN IN THE TREATMENT OF SKIN DISEASES.

By L. Duncan Bulkley, M.D., New York.

Perhaps there are no remedies to which more attention has been called of late than ichthyol and resorcin, largely through the instrumentality of Dr. Unna, of Hamburg, and time sufficient has now elapsed since their first introduction to allow of judgment regarding their true merits, for quite contradictory reports have appeared concerning them. They are placed by Unna as reducing agents, drawing oxygen from the tissues, and altering the corneous layer of the skin. They are by no means indifferent substances, but while capable of doing more or less good when properly used, they are irritating in many conditions, and in my experience, as also that of some others, they have not fulfilled the expectations excited by Unna's original contributions to the subject.

Ichthyol should always be used weak at first, the strength being increased according to the effect produced; 2 per cent., either in water or ointment, is strong enough to begin with, and rarely will more than 5 per cent. be well borne, at any rate on American skins. As a lotion, 2 to 3 per cent. in water, it certainly often exercises a remarkable effect on ulcers of the leg, they being kept wet with it all the time, the dressing being covered with a thickness of woollen blanket (but not rubber or oil-silk), to prevent too rapid evaporation. It is sometimes well at night to substitute an ointment, with 2 or 3 per cent. of ichthyol and a little zinc oxide. In certain moist eczemas about the folds of the body, a light bathing with a weak, 2 per cent. ichthyol lotion, followed by a calamine and zinc lotion, will give much better results than the latter alone. In certain cases in eczema in infants the effect produced by a thorough and continuous use of a zinc ointment containing 20 grains of ichthyol and 15 or 20 of salicylic acid, is certainly remarkable, and undoubtedly much greater than from either the zinc ointment alone, or when combined only with the salicylic acid.

Resorcin, which has been spoken of much in connection with ichthyol, is said to have much the same effect, but its action is more uncertain, and its use more restricted. It is undoubtedly a parasiticide, and forms a very cleanly and pleasant application in tinea versicolor, used in solution from 3 to 5, or even 10 per cent. in water with a little alcohol and glycerine. It is also of value in tinea circinata and marginatum, and it is claimed that a strong ointment, from 3 to 10 per cent., will act most favourably in tinea

sycosis. Resorcin is also serviceable in pityriasis capitis, used in a 3 to 5 per cent. solution with alcohol and castor oil. In seborrhœic eczema it also acts very well in a strength of 3 per cent., with zinc ointment. In psoriasis it may be used considerably stronger, even up to 10 to 20 per cent. in ointments.

Resorcin certainly seems to have considerable effect upon the sebaceous glands, and is useful in many of the forms of acne. Used in an alcoholic and watery solution, of from 2 to 5 per cent., it checks the oily secretion so common on portions of the face, and as an addition to lotions containing sulphur it often aids greatly in the treatment of acne. It must not be forgotten, however, that resorcin may prove very irritating if used in too strong a proportion —3 to 10 per cent. is quite sufficient—and also that it often produces a discoloration of the epidermis, which may take some little time to wear off.—*Journal Amer. Med. Association, Sept. 7.*

SYPHILITIC DISEASES.

83.—ON THE EFFECTS AND TREATMENT OF GONORRHŒA IN WOMEN.

By Charles J. Cullingworth, M.D., Obstetric Physician to St. Thomas's Hospital, London.

[The following excerpt is taken from an address read before the Metropolitan Counties Branch of the British Medical Association. Dr. Cullingworth's illustrative cases are here omitted.]

There is little doubt that, although gonorrhœa in the female is still regarded in this country as a comparatively unimportant affection, it really destroys the health of a larger number of women than does even the poison of syphilis. As a rule, the earlier indications of the disease pass unregarded. They are attended with but little pain, probably none when the urethra is not involved, and the significance of the purulent discharge is not understood. Hence it frequently happens that medical advice is not sought until a later stage, when the affection has had time to inflict serious, and sometimes life-long, damage on important organs. And even if advice is sought earlier, it is seldom that the disease is regarded seriously, or that vigorous treatment is adopted.

Attention has been already called to this question by several well-known writers, amongst whom may be specially mentioned Noeggerath, of New York; Sänger, of Leipzig; Schwarz, of Halle; the late Angus Macdonald, of Edinburgh; Mr. Lawson Tait, of Birmingham; and Dr. W. J. Sinclair, of Manchester, to whose excellent monograph I have been particularly indebted.

Acute gonorrhœa in the female is generally described as consisting mainly of an acute vaginitis. This, however, is not in

accordance with ordinary clinical experience. It is even doubtful whether vaginitis occurs at all in the majority of cases; if it does, it is usually slight in degree, and of very little importance. The lesion most constantly present is inflammation of the ducts of the vulvo-vaginal glands, and of the parts immediately surrounding their orifice. In a considerable number of cases there is urethritis, and not uncommonly there is redness with swelling, and occasionally, superficial ulceration of the nymphæ. But a more frequent lesion than either of the two last-mentioned is inflammation of the cervical mucous membrane, with more or less catarrhal erosion on the portio vaginalis and a purulent discharge. It is this liability of the cervix to early infection that gives to gonorrhœa in women so serious a character; for when once the disease has established itself in the cervix, and it may do so at the outset, the infection easily travels, or is conveyed, to the interior of the corpus uteri, and thence to the Fallopian tubes, pelvic peritoneum, and ovaries, parts quite beyond the reach of local treatment.

And it must not be supposed that only those women who lead an evil life become the victims of these internal inflammations of gonorrhœal origin. On the contrary, it is to their occurrence that the breakdown in health, following marriage, in previously healthy girls, is often traceable. The views of Noeggerath, as to the latency and incurability of gonorrhæa have been treated with too much contempt. As to its incurability, no doubt, he was wrong, he himself has admitted as much. Nevertheless, the credit is due to him of having first drawn attention to the fact that a gonorrhœa in the male, supposed to have been long cured, may be roused by marriage into renewed activity, and so may be unwittingly transmitted to the wife.

A very common result of a gonorrhœal salpingitis is the sealing up, by adhesive inflammation, of the fimbriated extremity of the Fallopian tube. When both tubes are thus closed, which they frequently are, it is evident there must be sterility. It is pretty certain that this is at least one of the reasons why prostitutes are so often sterile. But this sealing up of the free extremity is not the only or the worst effect of gonorrhœal infection upon the Fallopian tube. The whole mucous membrane lining the tube becomes inflamed and swollen, and a purulent secretion is poured out, which is liable to become encysted in the closed tube or in portions of it, forming a pyosalpinx, with its attendant miseries and dangers. In fact, pyosalpinx appears to be generally of gonorrhœal origin. I shall show presently that gonorrhœal salpingitis may also be attended with destructive ulceration.

The peritonitis induced by gonorrhœal infection is not usually very acute, or attended with severe symptoms. It is at first limited to the parts contiguous to the free extremity of the diseased tube, where thickening takes place, with adhesions and matting together

of the contents of the pelvis, especially of the tube, ovary, and broad ligament. The functions of these parts become seriously disturbed, and there is produced, on the affected side, a mass of irregular and ill-defined thickening, which can be readily made out on bimanual examination. The mobility of the uterus is also impaired.

I have carefully examined the notes of all the cases of pelvic inflammation admitted into Adelaide during the nine months I have been in charge, and I find that in nearly one-half of them there is a history pointing more or less clearly to a gonorrhœal origin. This may be, and probably is, an unusual proportion. There can be little doubt that septicæmia, following parturition or abortion, occupies the first place amongst the causes of pelvic inflammation. Next in importance comes, in my opinion, the poison of gonorrhœa. These two sources of infection are together responsible for an overwhelming majority of the cases, a small minority being due to cold, tubercle, injury, internal hemorrhage, etc.

I have said nothing about the bacteriology of gonorrhœa. I do not in the least underrate the importance of Neisser's discovery of the gonococcus—a discovery which I think has a direct bearing on the question of treatment—but it has been my aim to keep within the lines indicated in the title of my paper, so as to restrict any discussion which may take place within practicable and useful limits.

It will, however, no doubt be expected that, having expressed a strong opinion on the importance of energetic treatment in every case of acute gonorrhœa in the female, I should state my views as to what that treatment should be. Regarding, as I do, the evidence of the bacterial origin of gonorrhœa as indisputable, I naturally rely for its cure on remedies that have the power of destroying pathogenic micro-organisms. The old system of instructing the patient to syringe the vagina with lotions of lead, borax, or zinc is, or ought to be, obsolete. The local treatment should be undertaken by the medical attendant himself. The patient being placed in front of a window, in the dorsal position, with knees flexed and separated so as to expose the vulva, all discharge is to be wiped away by means of pledgets of cotton wool, which are to be at once burnt. If there is any abrasion on the nymphæ, it should be swabbed by means of pledgets of lint dipped in strong carbolic acid; as also should the mucous membrane surrounding the orifices of the vulvo-vaginal gland-ducts, after pressing out and removing any pus that may be lying in the ducts themselves. The urethra should then be pressed systematically from the neck of the bladder to the meatus externus by means of a finger in the vagina. If a drop of pus exudes, the urethra is known to be implicated. The method I adopt under such circumstances is to wrap a film of cotton-wool around a Playfair's uterine probe, and, having dipped it in strong carbolic acid and removed any superfluous moisture, pass it along

the urethra. I also administer copaiba by the mouth. If that remedy is ever indicated in the gonorrhœa of women, it is when the urethra is infected, and my own belief is that it is then useful.

With reference to the cervix, my treatment is, having removed all discharge from the canal and scraped any erosions that may be present, to apply strong carbolic acid to the scraped surface by means of a pledget of lint, and to the interior of the cervix by means of Playfair's probe. If there is reason to believe that the infection has reached the interior of the body of the uterus, the probe should be passed its full length, so as to bring the application in contact with the entero-mucous membrane of the body as well as the cervix. There only now remains the vagina to be dealt with. Its surface is too large and too sensitive for the application of strong carbolic acid. I, therefore, adopt the plan, suggested by Schwarz, of swabbing the whole vaginal surface through a speculum, with large pledgets of cotton-wool saturated with solution of corrosive sublimate (1 in 1000). These manipulations take much longer to describe than to carry out. They are not really very formidable, and, theoretically, they ought not to need repeating, though, in practice, they often do. I merely mention here the method of treatment I have myself been led to adopt. I am not in a position to dogmatise on the matter, for my experience is not large. Cases rarely come under our notice in this early stage. Whatever treatment be adopted, it should be capable of destroying pathogenic micro-organisms, and of penetrating the tissues to a certain extent, so as to reach any that may be just below the surface. When the infection has passed beyond the uterus, to the tubes, peritoneum, and ovaries, we can only deal with its results as we should with similar conditions of the same parts however caused.—*British Med. Journal, July* 20, *p.* 122.

84.—A NOTE ON THE TREATMENT OF GONORRHŒA.

By E. P. Price, M.D., Chicago, U.S.A.

Taking for granted that gonorrhœa is due to the action of a specific microbe, the gonococcus, we must treat it on the antiseptic plan, hence the following line of treatment. The patient should be placed in the recumbent position, and after lubricating an ordinary soft-rubber catheter with five per cent. carbolized oil, introduce it as far as the prostatic portion of the urethra. In acute cases it may be necessary to inject a little five per cent. solution of muriate of cocaine, if pain is produced. Now insert into the free end of the catheter an ordinary glass syringe, having a nozzle with an opening sufficiently large to allow the liquid to pass through easily, which will be about the consistence of an ordinary emulsion, and should be made as follows:—℞. Acid. boric. ʒ iij.; glycerini ʒ j. Mix, rub well together, and shake well before using.

Pour about two drachms of this mixture into the syringe, having previously withdrawn the plunger. Now, gently insert the plunger, and force the liquid into the catheter, which is held in place with the thumb and forefinger of the left hand—the forefinger of the right hand should be used to force in the plunger. After all the liquid has passed out, gently withdraw the catheter, stripping it at the same time in order to force all the liquid into the urethra. Let the patient remain in the recumbent position for ten minutes longer, the whole operation lasting generally about fifteen or twenty minutes. This treatment should be repeated every day, for the first two or three days, and then on each alternate day. As a rule, in acute attacks, five or six treatments will suffice. In long-standing cases the same treatment should be used, alternating with some mild astringent injection, as Lloyd's hydrastes, used in the same way. The sound should always be used in subacute and chronic cases, at intervals of about three days. It is also advisable to give internally, in all cases, a saline laxative, and in the old cases I generally give, in addition, capsules of bal. copaibii, ℥vj.; ol. cubebæ, ℥ iv., t.i.d., either before or after meals.

The fact of antisepsis should never be lost sight of, as so many are apt to do. It is a well-known fact that boric or boracic acid is a mild and unirritating antiseptic which, when combined with glycerine as a vehicle, also an antiseptic, renders it a very safe agent to use for this purpose.

One important point is also gained in this plan. We always have the patient practically under control, and can watch the progress made, not being dependent upon the say-so of the patient. I have used this method of treatment in quite a number of cases, with the very best results, and can unhesitatingly recommend it to the profession.—*N. Y. Medical Record, July* 20, 1889, *p.* 66.

AFFECTIONS OF THE EYE AND EAR, ETC.

85.—ON THE TREATMENT OF IMMATURE CATARACT.

By Anderson Critchett, F.R.C.S.Ed., M.A.Cantab., Senior Ophthalmic Surgeon to St. Mary's Hospital, London.

Many surgeons must, I feel sure, have met with numerous cases where not a little hardship has been endured, not only by the individual sufferer, but also by those who are dependent on him where the patient is the bread-winner, when cataract has become so far advanced as to seriously interfere with the pursuit of any occupation, but is not sufficiently mature to render an operation justifiable. A few years since the outlook for such a patient was exceedingly gloomy, for the ophthalmic surgeon, influenced by most worthy and conscientious scruples, could only advise post-

ponement till a more convenient season, which sometimes occupied many years in its advent, until at length hope repeatedly deferred became supplanted by despair, and the unfortunate patient too often drifted into the hands of some unscrupulous charlatan, who robbed him of his already diminished resources under the cover of specious promises which could never be fulfilled. Within the last decade great practical advances have been made in several directions towards a solution of the difficulty, and we may broadly divide the recognised operative methods into two classes—that which deals with the immature cataract by immediate extraction, and that which involves an artificial ripening of the lens before its removal. Amongst those who are adherents to the first-mentioned plan I may mention Mr. Tweedy, Mr. Couper, and Dr. McKeown. More than eight years since, at Moorfields, Mr. Tweedy removed an immature cataract from a respectable artisan, who had to no slight extent forced his hand by declaring that, if no surgical aid could be afforded him, he must enter the workhouse and remain there till the eye was ready for an operation. Referring to this case in May, 1888, Mr. Tweedy writes: "The extraction was uncomplicated, and the lens left the capsule entire. Recovery was prompt, and a few weeks later, with suitable glasses, the patient could read "brilliant" type quite fluently. Since that operation I have rarely refused to extract a cataract, no matter how immature, whenever both eyes were so affected that the patient was unable to earn his livelihood.

"The success which so far I have had I ascribe entirely to the kind of operation which I have been in the habit of performing—namely, a corneal section upwards with a Graefe's knife, with an iridectomy, and a peripheral section of the capsule of the lens with the cataract knife, leaving the anterior capsule, as far as practicable, intact. By this means the lens is taken, as it were, out of a pocket."

Mr. Tweedy claims that any lens matter which is left behind remains within the capsule to which the aqueous humour finds ready access, causing disintegration, liquefaction, and absorption, so that in due time, in the large majority of cases, a perfectly transparent capsule remains; while in those rare instances where opaque matter still obstructs the pupillary area a single needle will suffice to tear a capsule, the natural fragility of which has not been impaired by previous instrumentation. In the peripheral section of the capsule Mr. Tweedy was, I believe, anticipated by Dr. Knapp, of New York, who, however, used a cystotome for that purpose, while Mr. Tweedy thinks that a cleaner and better regulated incision can be obtained with a Graefe's knife. Mr. Couper is equally ready to operate on immature cataracts, and claims that he has done so with a large measure of success, but he adopts a plan which is the antipodes both in principle and in practice of that mentioned above, since he introduces a pair of specially

constructed forceps into the anterior chamber, and endeavours to remove a considerable portion of the centre of the anterior capsule.

The much canvassed plan of Dr. McKeown, of Belfast, who uses a syringe and warm water to wash the chamber free of soft lens substance, is already well known to you, and, although it has encountered much adverse criticism, I believe that it owns some staunch adherents, who are ready to substantiate their opinions by reliable statistics.

These are the principal methods of dealing directly with unripe and unripened lenses; but Dr. Förster's introduction of artificial maturation, which consists of iridectomy combined with cortex triturations, is an operative procedure which has already gained the approval and support of not a few ophthalmologists. There is, however, considerable difference of opinion; first, respecting the particular forms of the disease in which this method proves especially effective; and, secondly, as to its exact *modus operandi* upon the lens substance. Thus Förster considers the chief factor to be a mechanical destruction of the layers between the capsule and the nucleus, while Samelsohn thinks that the proceeding produces a change in the lymph stream, resulting in a disturbance of nutrition, and Helfreich seeks an explanation in the mechanical displacement of the individual lens layers.

Time will not permit me to go at length into the minute details of Förster's method, but the subject has been exhaustively dealt with by Dr. Otto Schirmer, who gives the results of numerous experiments. The chief point of difference between Förster and himself is as follows. Förster believes it to be essential to the success of his process that some opacity of the anterior cortex, even though lying very peripherally, must already exist, and in this view he is confirmed by Ottinger, who carried out ten trituration experiments in clear rabbit lenses with and without iridectomy, and in no case did any opacity result, in spite of the application of the most varied degrees of pressure.

Schirmer, on the other hand, after experimenting on fifty-two rabbit lenses, failed to find opacity in only six instances, and, as four of these belonged to his first cases, he believed the cause of failure must be attributed to imperfection of procedure. The other forty-six showed distinct opacity of lens. During the first few hours and sometimes days, this was frequently veiled by deposits of fibrin in the aqueous humour, occasionally consolidated to membranes over the anterior surface of the lens.

The opacification always made its first appearance at the anterior pole, close under the capsule, and by focal illumination an exceedingly fine striation was seen placed radially around the broad, gaping anterior extremity. In a few hours it progressed towards the equator, and its density became increased. Dr. Hess obtained similar results to those just mentioned, except that in

every case but one he produced total cataract, which may be attributed to the fact that he continued trituration for three or four minutes instead of half a minute; and this explanation gains probability from the fact that Voelckers, who only momentarily crushed the lens, never obtained a total cataract. The chief dangers of this proceeding seem to be that, if any excessive pressure be used during the trituration, there may subsequently be loss of vitreous when the lens is extracted, and also that the process sometimes produces troublesome iritis. Dr. Noyes, of New York, has published the results of Förster's operation in eight cases, all the patients being over 50 years of age. In two instances iritis ensued; in one of these both eyes were operated on at different times, and both ultimately gave a good result, but severe iritis occurred after each preliminary operation, and again after each extraction. It is to be noted that in this case the cataracts were devoid of all cortical opacity. In the other case iritis with a few synechiæ occurred, but without any prejudicial result. In all the cases an increase of opacity was observed to ensue immediately, but the rate of increase varied in different individuals. Where cortical opacity was already abundant, the effect was prompt and unaccompanied by unpleasant reaction, and in no case did glaucomatous symptoms arise. I believe I am justified in stating that in Great Britain Förster's method of artificial maturation has as yet met with no very general adoption, though some ophthalmic surgeons, including Mr. McHardy, have given and are still giving to it an impartial trial, and I hope that at no distant date we may be favoured with the result of their experiences.

I do not desire to hold a special brief on behalf of any individual proceeding, though I think it is probable that the best solution of the question will ultimately be found in a happy union of Förster's somewhat radical method with the eminently conservative ophthalmic surgery which is advocated by Mr. Tweedy.—*British Medical Journal, Aug.* 24, 1889, *p.* 414.

86.—ON THE OPERATION OF PERITOMY.

By A. Vernon Ford, M.R.C.S., Surgeon to the Portsmouth and South Hants Eye and Ear Infirmary.

The operation of peritomy was first practised in 1862 by Dr. Furnari of Paris, and was afterwards largely used in cases of pannus by Mr. Critchett. Some statistics upon the subject are to be found in the London Ophthalmic Hospital Reports (vol. iv., p. 182). Of late years it has fallen to some extent into disuse, and this is, in my opinion, largely due to its having been applied to lesions for which it was not properly adapted. In suitable cases it is still of the utmost value to the ophthalmic surgeon. I would especially recommend it in those troublesome cases of keratitis,

ulcerative, vascular, strumous, and suppurative, which are the opprobrium of our eye wards. Prolonged courses of drops and lotions have little if any effect upon such cases, while peritomy rapidly brings about a subsidence of the inflammation and a quick return to the normal transparency of the cornea. The increased pressure within the cornea arising from the separation of the strata, or by a blockage of the intercellular spaces and canals, is directly dependent upon the blood-supply of the part. Now, as the cornea derives its blood-supply principally from the conjunctiva, the local depletion consequent upon a division of its vessels, and of the loops which surround its circumference, would naturally tend to promote a healthy reaction, and facilitate the absorption of those stagnant cellular elements which separate the strata, and so interfere with the refraction of the cornea. After an experience of 250 cases, I am confident that peritomy yields unexceptionable results in the class of affections which I have indicated. It is useless to continue week after week to prescribe sedative and astringent lotions, when the case terminates too often in dense opacities which permanently impair the vision, and leave behind them amblyopia, astigmatism, and a host of evils. Without pressing my opinion unduly, I would submit that the operation is worthy of a trial, and that it is to be regretted that some of our best known text-books contain hardly any reference to so simple and effective a mode of treatment. Peritomy practised in a large out-patient department, involving as it does the use of anæsthetics, entails considerable labour upon the surgeon and his assistants. This is more than compensated for, however, when we find young patients who have suffered from all the distressing symptoms of photophobia, lacrymation, and blepharospasm coming back a few days after a thoroughly performed peritomy, and interviewing their doctor with an erect carriage and with a clearing cornea, through which day by day the light is more equally refracted. As regards the operation itself, I do not believe in partial peritomies, and I take great care to thoroughly dissect the subconjunctival tissue right up to the margin of the cornea. The after-treatment consists in the use of mild astringents and antiseptics, boracic acid (ten grains to one ounce), or yellow oxide of mercury ointment (from four to eight grains to one ounce), to encourage the absorption of opaque elements. The general constitutional condition, is, of course, a separate factor, which must be treated in each case upon its own merits. I make it a rule never to have recourse to peritomy until I find that milder measures are useless. If after a week's ordinary treatment the local condition is not improved, I have then no hesitation in operating. In all cases after operation I employ a compress of cotton-wool held in place by a bandage, shades being in my experience as often injurious as beneficial. I may say, in conclusion, that I have found peritomy useful in the chronic forms of keratitis,

threatening staphyloma, and degeneration of the corneal structure, but not so much so as in those acute and subacute affections for which it is, in my opinion, specific.—*Lancet, June* 15, 1889, *p.* 1186.

87.—ON A NEW METHOD OF TREATING SOME OF THE GRAVER FORMS OF INFLAMMATION OF THE CORNEA.

By G. E. Walker, F.R.C.S., Consulting Ophthalmic Surgeon to the Northern Hospital, Liverpool.

The inflammations of the cornea on which I shall chiefly dwell are those which are usually called strumous: those resulting from severe chill, from wounds and bruises, and from purulent ophthalmia.

In the autumn of 1886 a girl about 13 years old was brought by her mother, who stated that she took her three months before to a hospital on account of a slight inflammation of her eyes, and that she had become steadily worse and worse until she was in her present condition. The eyelids were much swollen, could not be opened without an anæsthetic, and when she was under it, were opened with difficulty. I rather expected to find a case of multiple small abscess, which I could cut, but was rather taken aback at finding only general infiltration with much pannus. I knew that all ordinary means had been tried, so it was useless repeating these. If I cut across the cornea, as I had done in cases of purulent ophthalmia where there was no alternative between so doing and awaiting total destruction of the cornea, doubtless I should relieve. But in this case, though it was grave, there was no immediate necessity for doing that which, though it would certainly relieve and most likely cure the disease, would entail on the eye the permanent disadvantage of a long dense scar, causing both obscuration of sight and disfigurement. I therefore put this method aside, and proceeded to adopt an idea, which seemed to spring all at once into my mind, but which doubtless was the outcome of much pondering over the difficulties of which I have been speaking.

If a diametrical incision would relieve even worse corneal tension than that which I had before me, why should not a series of shorter incisions, whose total length should be equal or nearly equal to the length of the diametrical incision, do the same? And if so, why should not these shorter incisions be made at the base of the cornea, when they would cause neither damage to the sight nor disfigurement. In less time, perhaps, than it has taken to record this, I conceived and performed the operation; the amount of blood and serum which escaped from the incisions showing what a relief had been afforded to the cornea, which cleared up perceptibly whilst the operation was proceeding. This clearing is a very striking feature in the operation, and has often been remarked by those who have witnessed it. All doubt as to the benefit of the method was soon removed. After recovery from the chloroform, the girl

expressed herself as quite relieved from the old pain, and two days afterwards spontaneously opened her eyes, for the first time for three months. Subsequently, with some further treatment, which need not be entered into here, she recovered such sight as was possible, and was rendered equal to the ordinary duties of her position. She has had one or two slight affections of the cornea since, but they have speedily succumbed to ordinary treatment.

I did not then appreciate the powerful weapon which I had in my hands, and for some time limited the use of it to such cases as the foregoing, practising it therefore rarely. But gradually, as more and more good results were obtained, I extended the use of the operation to more acute and more serious cases.

As to the method of performing the operation,—which we have styled "Perikerotomy," "cutting round the cornea," or for short "Kerotomy,"—and the after treatment. Standing behind the recumbent patient, insert the speculum, and fix, with toothed forceps, the conjunctiva opposite the lowest point of the cornea. Then thrust a broad needle through the sclera, just behind its junction with the cornea, until the shoulder of the needle is visible in the anterior chamber. Of course the blade must be held nearly parallel with the plane of the iris, but the puncture should be oblique and valvular, so that on the withdrawal no aqueous escape. This puncture should be repeated until the circumference be traversed. In severe cases, the bridge between the incisions should be of the same width as the incisions themselves; in cases of less gravity twice or thrice the width. I am in the habit of making about two-thirds of the incisions with the right hand, and the remainder with the left.

If carefully performed, the operation causes no loss of aqueous, or if it does, the fluid is replenished so rapidly, that the anterior chamber is as full after the operation as before. It is important to operate so as to ensure this, in order to prevent the additional pain consequent on an empty chamber, and, what is more important still, to enable one to complete the incisions without endangering the lens. The only accident I have had, out of some two hundred operations, happened through the use of a bent kerotome, which, being somewhat blunt, and entering the chamber with a jerk, caused me to withdraw it hastily, and to produce a slight prolapse of the iris. Since then I have always used a broad needle, which keeps its point and edge good for many operations.

After the operation, which is done under a local or general anæsthetic, an ample water-dressing is applied, the other eye being kept closed as well. I prefer not to use atropine, unless I am sure there is iritis, as the drug has appeared to be prejudicial in several instances. The eye seldom wants any further treatment, though if from fresh cold the symptoms appear to be exacerbated, the operation can be repeated without prejudice. But of the few

cases in which I have repeated it, or seen it repeated, I have thought afterwards a little more patient watching might have sufficed in most.

As this method has for a long time been gradually superseding all others, and as it has in the last four months entirely done so in my practice, and as I have never seen reason to regret using it, whilst I have repeatedly, as in the case of the infant above related, seen reason to regret doing anything else, I beg to recommend its adoption.—*Liverpool Med.-Chir. Journal, July* 1889, *p.* 268.

88.—ON THE TREATMENT OF PURULENT OPHTHALMIA AND DACRYOCYSTITIS BY ANTISEPTIC IRRIGATION.

By Hugh E. Jones, M.R.C.S., Assistant Surgeon to the Liverpool Eye and Ear Infirmary.

The object of this short paper is to show what success has in practice followed the treatment advocated by Mr. Edgar Browne for purulent ophthalmia and dacryocystitis. For the convenience of readers I have described the methods employed, and for those who may wish to try the treatment, the modifications which experience showed to be advisable.

In his paper on "Some Points in the Treatment of Purulent Ophthalmia," Mr. Edgar Browne said that the indications for the treatment of that disease were (1) to wash away the infective material as thoroughly and as early as possible; (2) to render the conjunctival epithelium and secretions as nearly as may be aseptic. He then described his own method of following out these indications by prolonged irrigation of the *whole* of the conjunctiva with a half per cent. solution of trichlor-phenolate of magnesium. The apparatus used consisted of an ordinary irrigating reservoir and tube and a lid retractor made of fine silver tubing perforated with six holes in the portion which entered the conjunctival sac. No cases of gonorrhœal ophthalmia in which this treatment had been employed, were mentioned in that paper, though the results obtained in urethral gonorrhœa were given.

With regard to the antiseptic solutions used, we found that Panas' solution of biniodide of mercury caused much less smarting than the trichlor-phenol (even when the latter was used as a half per cent. solution), and that though the treatment occupied a longer time, the final result was quite as good. In one case Mr. Edgar Browne's irrigating lid retractor was used; in three I used an ordinary Eustachian catheter bent to a suitable angle, and found that, when passed well up into the conjunctival sac and moved slowly from one end to the other, it acted as well, or nearly as well, as the more elaborate special instrument. In all the cases ulceration of the cornea had set in before admission to hospital, and in all healing began within a few hours of the first irrigation. The

discharge was always much less on the second day, and ceased entirely within a fortnight, so that the patients could be transferred to the general wards. In all the cases I have seen treated by the older methods (nitrate of silver, iodoform, &c.) ulcers have gone on spreading until the discharge had nearly stopped, causing very severe permanent mischief to the cornea, and in some cases total loss. Irrigation was also found very useful in many cases of strumous and membranous ophthalmia, and in some of sloughing ulcer of the cornea with chronic conjunctivitis. In ophthalmia neonatorum, though shortening the duration of the disease very much, it was too troublesome and painful to be made the routine practice. [Mr. Jones's cases are here omitted.]

Dacryocystitis.—In 1886 Mr. Edgar Browne, recognising the important part played by pyogenic cocci—as shown by the researches of Sättler and Widmark—in diseases of the lacrymal sac and duct, applied the principle of irrigation to the treatment of lacrymal disease. As house surgeon it fell to my lot to carry out the details of the treatment. The object to be attained was practically the same as in gonorrhœal ophthalmia—viz., to wash away the discharge and to render the mucous membrane and its secretion aseptic without damaging the epithelium or aggravating the existing inflammation. In the first few cases an ordinary No. 1 gum-elastic catheter, to which the irrigator tube was attached, was passed down the lacrymal duct and trichlor-phenol solution (about half per cent.) used; but this was never a very satisfactory arrangement, as it was difficult to pass the catheter, and the solution caused very severe smarting. In all the cases recorded here the following was the method adopted. 1. The lower canaliculus was slit up sufficiently to admit a moderate-sized probe (except in some cases of lacrymal abscess, where the external opening rendered this unnecessary). 2. Weber's stilette and cannula (made by Matthieu, and figured in Juler's "Ophthalmic Science and Practice") were then introduced into the sac, the stilette withdrawn, the irrigator tube attached to the cannula, and about half a pint of Panas' solution run through. 3. Next day, supposing the sac not to be too acutely inflamed, a probe was passed, and afterwards the whole tract irrigated, the cannula being passed down the duct. In chronic cases, where the discharge was too thick and viscid to yield to ordinary means, about a pint of a ten-grain solution of bicarbonate of soda was used before the Panas' solution. 4. When a stricture existed a larger cannula was used every day until the stricture was sufficiently dilated. 5. During the process of irrigation it is necessary for the patient to hold his mouth wide open, for obvious reasons.

The following objections to the instrument will probably occur to every ophthalmic surgeon: 1. If at all strongly curved, the withdrawal of a stiff, closely fitting stilette must be a difficult and jerky process. 2. If the cannula is introduced up to the hilt, the

fluid irrigates not the lacrymal sac or duct, but the nasal mucous membrane. 3. If the cannula be withdrawn ever so slightly, it cannot, owing to its open end, be replaced without reintroducing the stilette. To avoid these difficulties, I got Messrs. Weiss and Son to make a cannula closed and rounded at the distal end, and

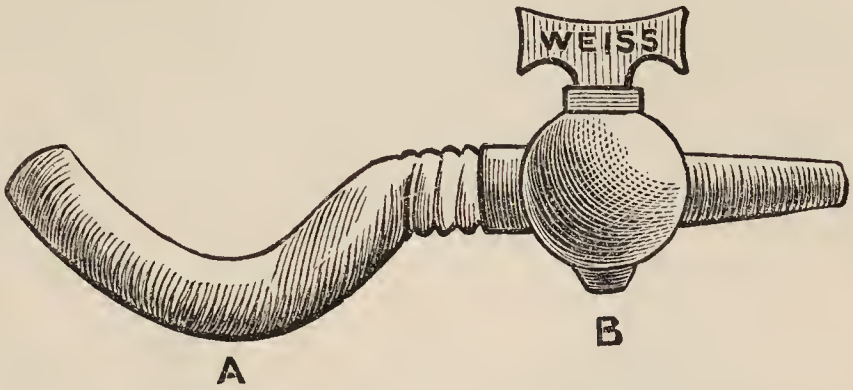


Fig. 1.—A, Rubber tubing from reservoir. B, Stopcock.

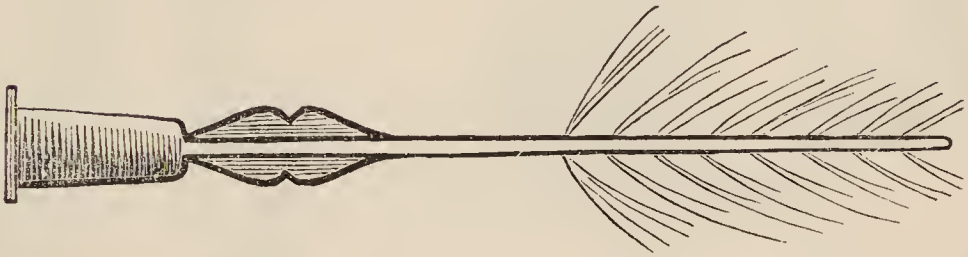


Fig. 2.—Cannula (small bore).

pierced along the sides by small holes for about one inch of its length. The proximal end was made to fit the tapering nozzle of a small stopcock. No stilette is required, for this cannula can be withdrawn and reintroduced to any extent with perfect ease and without detaching the stopcock; it, moreover, irrigates the whole of the sac, nasal duct, and part of the nasal fossæ at the same time. I used this cannula daily for four months. It serves its purpose admirably, and is kept clean quite easily.

Remarks.—It may be asked whether this treatment has any lasting effect upon the stricture which, in many cases, has caused the mucocele or abscess. The large number of cases treated during two years and a half have left a firm impression on my mind that the good effect is more permanent than in cases treated simply by the knife and probe, and that the formation of a stricture is more frequently prevented than by the ordinary methods of treatment, including the injection of astringents. Irrigation gains additional value from the fact that by it the nasal mucous membrane is treated simultaneously with that of the nasal duct and lacrymal sac, which must be of considerable importance in cases arising from or complicated by nasal catarrh or ozæna.—*Lancet, Oct.* 19, *p.* 788.

89.—ON THE TRANSPLANTATION OF SKIN-FLAPS BY WOLFE'S METHOD—WITH THREE CASES.

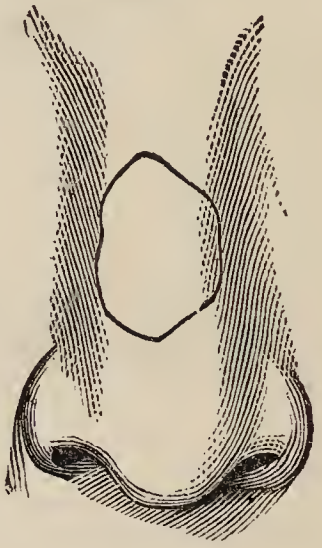
By Fr. Von Esmarch, Professor of Surgery in Kiel University.

In an inaugural dissertation published by Dr. Hahn of the Kiel University, a detailed account having been given of a number of plastic operations from my clinique, in which Wolfe's method of transplanting skin-flaps from distant parts without pedicles had been employed, it may be of some interest to the readers of the *Lancet* to have my views as to the merits of that operation.

Hahn reports thirteen cases in which skin defects had been supplied, mostly with satisfactory results, by Wolfe's method of transplantation. These defects were the result in three cases of

Fig. 1.

Fig. 2.



the existence of cancer of the face, in one of extirpation of nævus pigmentosus, and in four of rhinoplasty from the forehead. Wolfe's flap was in three cases taken directly for the purpose of partial rhinoplasty, and in two others for the formation of eyelids. The defects varied from 1 cm. to 5 cm. in diameter. Adhesion of the flaps took place in from five to ten days. Some entirely healed at once, and the transplanted flaps differed from the neighbouring skin only in retaining for some time a paler colour. In most cases there were exfoliation of the cuticle and necrosis of small spots of dermis, but without in the least prejudicing the successful result of the operation. Entire failure only resulted in one case, in which there existed the most unfavourable condition of the patient's skin. The following cases may serve as examples of the operations on the face.

Fig. 1 represents a case of cancer rodens of the nose in a young girl seventeen years of age. The right wing of the nose was destroyed, and the nostril almost closed, being only kept open by a drain. By two arched incisions the cicatricial tissue was removed,

and the defect covered by a skin-flap from the upper arm. In six days adhesion was perfect.

Fig. 2 shows another case of cancer rodens. Madame K——, wife of a lieutenant-colonel, was first attacked in 1876, and for seven years recurring attacks caused most excruciating pain. Various surgeons were applied to, and all sorts of means (homœopathic included) adopted without avail. I resolved in 1883, by which time the bridge of the nose was almost entirely covered with cancer, to remove the diseased tissue, and to cover with a flap from the left arm. The flap united perfectly in ten days, and since then there has been no return of the disease.

Fig. 3.

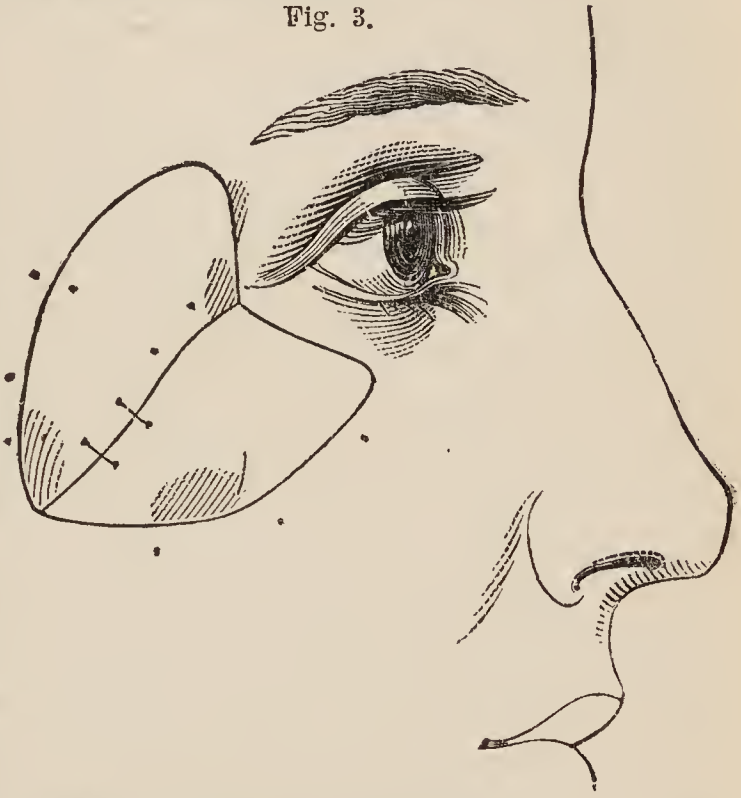


Fig. 3 illustrates the following case. G——, five years of age, daughter of a landed proprietor, was very much disfigured by a nævus pigmentosus. Attempts had been made to remove the nævus in three sittings, but it returned. In 1884 I removed the whole nævus, and covered one-half of the place with a flap from the left arm, and the other with a flap from the forearm. Within seven days adhesion had taken place, and in about three weeks the appearance of the flaps was normal.

The advantages of transplantation by Wolfe's method are the following. 1. His method enables us at once and completely to cover fresh wounds. 2. We can replace skin with cicatricial tissue by true skin, which offers greater resistance to external deleterious effects. 3. It gives better cosmetic results than any other method of transplantation, and this is specially important in operations on the face. The only disadvantage which this method has is that the flap is liable to subsequent shrinking, but this can be obviated by making it larger than is necessary, so as to provide for the shrinkage. Wolfe's method is peculiarly applicable to plastic operations, and cases in which we have to deal with large wounded surfaces in the face, incapable of being closed with sutures. In such cases it is to be preferred to any other method.—*Lancet, June* 8, 1889, *p.* 1131.

90.—ON TINNITUS AURIUM AND ITS TREATMENT.

By Sir William B. Dalby, F.R.C.S., M.B.Cantab., Aural Surgeon to St. George's Hospital, London.

Few things are more delusive or tend more to narrow the limits of aural surgery—in other words, to prevent its intelligent progress—than the numberless vaunted remedies for tinnitus. The explanation of the marvellous literature that has been written upon this subject is probably to be found in the fact that a good many cases do not admit of relief. The truth is that, like pain, it is a symptom, and, like pain, it has to be endured, unless and until the cause can be removed or disappears. In many cases it can be removed; in others it goes away as it began, without any apparent reason; in others it is of a lasting nature, since the causes which produce it are of a kind which remain with life. Amongst these latter must be counted the degeneration of the arterial system after middle life. Inasmuch, then, as in such instances the symptom is incurable and outside the limits of surgery, advertisers in the daily press volunteer to cure it by means of electricity (always an attractive remedy with the public) and other methods. Perhaps because tinnitus due to degeneration and some other causes is of a constant character, the kind of electricity which finds most favour amongst its advocates is the constant current; but, whether this or the interrupted is employed, it is generally the personally conducted and continuous as long as possible. This sort of treatment seems likely to go on until it becomes known that the cause of tinnitus is very often situated behind the tympanic cavity. I say this with a reservation, as I shall presently show; but, in a large proportion of cases in which patients are troubled with noises in the head, I have no sort of doubt that it is due to nervous causes, and it is most necessary to state this, since it rarely happens within my experience that patients with tinnitus are not submitted to treatment of the middle ear. In order to understand why this trouble is so frequently of nervous origin, the numerous conditions under which it is produced, and in which it is found to be a constant symptom, must be considered; then overwhelming evidence of its seat-origin may be made plain.

First, to take examples in which one ear only is affected. An unexpected explosion of a gun near an ear will instantly produce it, and it will remain for long periods—sometimes for years, or even a lifetime. An unexpected blow on the ear—i.e., a box on the ear from a person behind. A loud whistle or other violent noise close to the ear—sounded, perhaps, in play. After concussion or fracture of the skull, it is generally present.

Again, most cases in which the nervous power of hearing is lost without any perceptible local change and without any inflammation or catarrh of the middle ear are accompanied with tinnitus,

and this is especially so if both ears are affected. For example, when prolonged anxieties, mental shock, typhoid, typhus, mumps, the fevers of India, etc., are followed by deafness (the middle ear never having suffered), tinnitus is present. When the hearing is lost or impaired by constitutional or inherited syphilis, or by advancing age; with those in whom the hearing fails in most members of the family towards middle age, a deafness whose cause is unknown, without a name, and without a remedy, with no evidence by which to discover such cause; with good health and healthy middle ears; with these and their like there is generally tinnitus. If there is a noteworthy presence of tinnitus in these cases, so in the large proportion of middle-ear diseases there is a noteworthy absence. In case after case of middle ear disease that come day by day before our notice, such as an obstructed Eustachian tube, recent catarrh, subacute or acute inflammation of the tympanum, perforations accompanied by purulent discharge, polypus, or other details, is it the rule to meet with tinnitus? When the tympanum has been completely disorganised and the membrane destroyed in its entirety, is it the rule to meet with tinnitus? Quite the contrary; it is extremely rare, and then only of passing character. Then, surely, if the source and origin of tinnitus is to be sought and found in the middle ear, it would be common in these examples. If this reasoning is sound, and if it becomes accepted as logical, there ought to be a fair prospect of seeing an end of the restless agitation of the tympana of persons who suffer from tinnitus. It may be asked, what is proposed to put in its place? To this I would reply that, before any substitute for unscientific treatment is proposed, it should be discontinued; let it be recognised that, compared with an open-minded attempt to discover the source of symptoms, all treatment is quite unimportant; that when the cause is discovered, rational treatment will suggest itself; that when the cause is found to be a condition that does not admit of remedy, an abstention of all treatment, especially surgical interference, should be insisted on.

Let me exemplify this for a moment. There is a particular class of men whom it is accustomed to describe, and who so speak of themselves, as being overworked. I do not here refer to men of great mental ability, who work assiduously for many hours at occupations which involve intellectual work, but to those men who appear to be unable to bear the worries of business or private life, and who perhaps take a good deal of wine during the day because they feel relief from its sedative action. These sort of people often suffer from tinnitus, and if they can be persuaded to work for a less number of hours and to give up the sedative, get well without any further treatment. The truth is, these men do not start with very strong brains, and what is overwork for them would be child's play for more powerful brains. They may not be

very interesting people excepting so far as what relates to their maladies, but it is with these we are now concerned. On several occasions I have seen patients who have complained of tinnitus of a very persistent kind, whose minds were evidently much disturbed by it, and who in the course of conversation have described a variation in the symptom as if they heard distinctly spoken words. This form of tinnitus is without doubt of a very serious character, for the subjects have shortly afterwards become insane. This is of course well known to those who have to deal with insanity. It would be an endless task to mention the noises which tinnitus simulates, as described by patients. From the sound of a sea-shell held up to the ear—the mildest of all forms—to the letting off of steam and the distracting noise of machinery; but it may be accepted as a rule that tinnitus of (so to speak) a furious character is the commencement of very great, if not total, loss of hearing. I observed just now that tinnitus is absent in most cases of perforations which have lasted for years, and in which the loss of hearing has been tolerably uniform throughout; but if in such instances tinnitus sets in, the partial hearing is generally lost or nearly so. This bears out the view that the tinnitus, in this case at least, is distinctly of nervous origin. The sensation of a pulse in the ear, combined with general tinnitus, is such a common symptom in quite young people (especially the anæmic), with loss of hearing not due to middle-ear disease, that it is desirable not to attach too much importance to it. At the same time, in elderly people with degeneration of the arterial system and deafness depending on this cause, it must be admitted that it possesses a significance which it does not in other cases; and I am led to say this, because I have observed a considerable number of cases in which patients who have consulted me for this symptom have at a period not very remote succumbed to apoplexy.

Another example of the undoubtedly nervous origin of tinnitus might be instanced in the class of cases which go by the name of "Menière's disease." It is a useful term, because it serves to designate a disorder which shows itself by a train of symptoms alarming to the patient, but in no way dangerous to life. These symptoms begin by severe attacks of giddiness—so severe sometimes that the subjects fall down, but are never unconscious; a feeling of nausea, even vomiting at times: sweating; great prostration, lasting for hours and even for days; inability to move without feeling giddy. After such an attack, it is noticed that there is tinnitus and deafness in one ear. By-and-by these attacks become less frequent and finally cease, but the deafness and tinnitus remain. The seat of the lesion in these cases is quite uncertain, but at any rate it is central and in the auditory tract. I cannot satisfy myself that the semi-circular canals are the position of the lesion, for many reasons that it is not necessary to go into here;

nor, indeed, do I think that the semicircular canals have been satisfactorily proved to influence the equilibrium. The cases are very common, but I only refer to them now to show the nervous origin of the tinnitus, which is one of their distinguishing characteristics.

Amongst the minority of instances in which tinnitus depends on disorders of the external or middle ear must be included the familiar one of cerumen in the external canal, and that stage of catarrh where a quantity of mucus is in the tympanic cavity; but the chief place in which this symptom figures must be given to that slow and gradual in progress, insidious, obscure in origin, intractable disease termed proliferous catarrh of the middle ear—that change in the whole lining membrane of the tympanum causing progressive deafness, and accompanied by tinnitus. The treatment of this disease is a problem which has exercised the mind of aural surgeons throughout the world, and is still doing so—how to check in its onset, how to improve the hearing in its later stages. There are three points which at once present themselves to those who approach this subject: First, that the tuning fork is heard well through the cranial bones; second, that ordinary catarrh slightly increases the deafness, showing that the lining membrane of the tympanum is the seat of pathological change; and third, that in all the operative proceedings that have been devised for its treatment one fact stands out in relief—viz., that when an opening has been made as a preliminary step in the tympanic membrane, at that moment, and so long as it remains patent (it only does so for a few days, so rapidly does the opening close up), the hearing in many cases has become much better. This would point to the fact that some tension has been relieved, and that if sonorous vibrations could reach the fenestræ without the intervention of the tympanic membrane the hearing would be better. I say these are the points which always have been, and still are, before the minds of those who have made persevering attempts to enlarge the field of aural surgery in the treatment of the disorder. This was notably so in the case of the late Mr. Hinton of Guy's Hospital. He was a man of original mind, great ability, industry, and perseverance, and at a time when I was daily associated with him from 1869 to 1872 he was firmly convinced that he would be able to relieve the loss of hearing in these cases. During the period referred to, it is no exaggeration to say that he seldom passed a day without making an incision into the tympanic membrane. He had found by experience that he could do so without injuring the hearing, and that in a certain number of cases the hearing was better, in some much better, after healing had taken place. But it must be remembered that in his first attempts he had selected cases, not of true proliferous catarrh, but those in which he had reason to believe that there was an accumulation of mucus within the tympanic cavity. The results of this proceeding may be found

most carefully detailed in two papers in the Guy's Hospital Reports. How careful he was in his observations may be judged by the fact that he used to have a drawing made of the membrane before he operated (this drawing took the artist several hours to execute), and another after the membrane had healed. Of the extraordinary accuracy of these drawings I had daily opportunity of observing. The cases in the Guy's Hospital Reports speak for themselves, but of the rest what were, broadly speaking, the results? A certain small proportion of these derived considerable relief, but whenever this was so it happened in those cases where there was ocular demonstration of mucus in the tympanum—i.e., after the incision it was expelled through the cut. I could not say that the results were encouraging in the cases of dry (proliferous) catarrh. Now at that time I was conducting the same kind of tentative treatment, and my results were precisely the same. If further confirmation were wanted in this direction, it can be obtained from the experience of Mr. Purves, who succeeded Mr. Hinton at Guy's Hospital in 1874, and who published his experiences in a paper which may be seen in the Medical and Chirurgical Society's Transactions. Here may be seen most carefully collected details and a most dispassionate view of the results which followed incision of the membrane in these cases. No one can say, therefore, that this proceeding has not had a fair trial; the results are before the profession, and how has it stood the only true test—of time? In the opinion of those whose opinion is worth having, it is universally agreed that the exceptions are rare when it is necessary to incise the membrane, and these exceptions are limited to those cases where there is evidence of secretion within the tympanum.—*Lancet, July* 6.

91.—ON THE TREATMENT OF AURAL EXOSTOSES.

By Geo. P. Field, M.R.C.S., Aural Surgeon to St. Mary's Hospital.

The rarest form of aural exostosis consists simply in a general thickening of the walls of the osseous meatus. In practice the examples of exostosis usually met with are those affecting only a limited area of the meatus. We may take it, I think, as pretty well established that their causation is some local source of irritation of the ear—active in the instance of the rapidly-growing pedunculate forms, and slight but long continued in that of the rarer and slowly-developed ivory-like tumours. There are certainly as yet no conclusive data for the supposition that syphilis, scrofula, gout, or rheumatism influences their production, nor does heredity appear to have any special determining cause.

I was first induced to enunciate the opinion that these growths are most probably, in many instances, due to the irritation of the ear by salt water, introduced repeatedly during a long course of sea baths, by the singularity of the fact that four of my patients,

who for protracted periods used to bathe together on the south coast of Ireland, had each to be operated on for double ivory exostosis.

I may add, that I have met with numerous subsequent exemplifications of the correctness of my original view. In common with other aurists, I have found the occurrence of an exostosis among hospital patients to be an almost unique phenomenon, and it is difficult to avoid the surmise that these persons owe their exemption chiefly to the rarity with which they expose their ears to the ingress of water—their ablutions, as a rule, being scanty. In connection with the etiology of aural exostosis, it is noteworthy that among women, whose constitution and mode of life perhaps renders them more obnoxious to active inflammatory disease, soft growths which discharge are much more common than among men; whereas, it is almost invariably one's male patients that are the subjects of ivory exostosis.

Whatever the apparent exciting cause of the growth, the practitioner's first duty is obviously to endeavour to ascertain the same, and to remove it if still existent. He has next, and this is a most important matter, to consider the question of operation—whether it be necessary at all, and, if so, how soon it should be undertaken. Some authors have recommended a "masterly inactivity" until the exostosis has attained its full development. My experience is that it is far better to operate whilst there is room left to guide the drill, should that be required. The danger and difficulty of operating when the ear is completely occluded are very great. There are cases in which the only advice that can be given is "Defer no time; delays have dangerous ends."

As regards the operative treatment of exostoses, much that is almost contradictory has been promulgated, and for this reason: the operator has not always taken the precaution, before proclaiming the success of his methods, to ascertain that the growth he has extirpated by a few seconds' application of the *écraseur*, or a slight wrench of the dentist's forceps, with perhaps a dozen or two preliminary revolutions of the drill, is actually the hard and ivory-like body that he has fondly imagined it to be.

As a matter of fact, the destruction of one of the intensely hard broad-based aural exostoses, or hyperostoses, apart from the exercise of considerable patience and a variety of precautions, and the employment of special measures, is an undertaking at once difficult, tedious, and uncertain.

In the treatment of a now exceedingly numerous series of these growths I have found the employment of the dental engine a uniformly satisfactory measure, on the score not only of ease of application and economy of time (I now rarely take more than twenty minutes for one ear), but also of after-results. In my experience the dental engine is more under control when worked by the foot than by means of electricity.

Much has been written in favour of mallet and chisel rather than the drill for the removal of aural exostoses. With all due admiration for those that can efficiently use them, I cannot but regard these instruments as more likely, even with the adoption of every available precaution, to cause injury to patients than the drill.

I have operated on several patients where the bone has completely blocked up the meatus; in one last month, a gentleman in the Indian Civil Service had been deaf for some years from a growth of bone deeply seated, which entirely blocked up the auditory canal. I used the drill most satisfactorily. In such cases the mallet and the chisel would be worse than useless, for I feel certain it would be impossible to operate in such a way; but with the drill, on the contrary, I have found little or no difficulty in making an aperture sufficiently large for the passage of sound, or of pus should an abscess occur in the drum. When the osseous growth is deeply seated great caution, I need hardly say, is absolutely necessary. For the past eight years I have been in the habit of operating for double exotoses at one sitting; formerly I took one ear at a time. Greater experience, together with a more rapid mode of procedure, enables me to say that this is far better, especially for the patient, who naturally dreads a second operation. My cases to the present time without exception have done well, and this I attribute in a great measure to my practice of always insisting on absolute rest for some days, and never permitting a patient to leave the house under a week, and so far as possible avoiding cold.

One curious point with regard to these operations is that in the majority of patients there is little or no pain felt afterwards; whilst, on the other hand, in some few cases very great pain is experienced subsequently, and it may be present in one or both ears; luckily the latter is rare, and I am unable to account for the suffering of some patients and the complete absence of it in others.

Even the most skilled manipulators of the mallet and chisel must, I think, admit that it is exceedingly difficult to make sure, by their means, of removing the apices of two or more exostoses within one meatus. This, however, must, I find, be accomplished in order to secure the patient immunity from a repetition of his troubles; and it can be readily and effectually accomplished by the use of the drill. In one of my earlier cases of multiple exostosis, the largest exostosis only was removed, and four years later the others had so increased in size as to make a second operation indispensable; so that I have found in multiple exostosis it is necessary to drill the apices of all, and no further trouble will result. The arrest of the growth by drilling is well illustrated by the case of our colleague, Dr. Mackesy, who can personally testify that after the lapse of nearly twelve years since he was operated on, he can hear as well as ever.—*British Med. Jour., Aug.* 24, *p.* 415.

Obstetrics & Gynæcology.

92.—ON THE SYMPTOMS, PROGRESS, AND TREATMENT OF EXTRA-UTERINE GESTATION.

By J. Matthews Duncan, M.D., F.R.S., Physician-Accoucheur to St. Bartholomew's Hospital, London.

There are no definite symptoms of this condition apart from those of pregnancy. It is to signs and to accidents that you trust for diagnosis, and not rarely you have great uncertainty. Abdominal pregnancy has fewest symptoms; it may go on to full term not suspected to be other than normal pregnancy. Indeed, like others, I believe I have observed it to go on beyond the natural term, the child surviving—protracted pregnancy. The thinness of the coverings of the fœtus as felt through the abdominal wall may be very striking, especially if there is hydramnios. When the placenta is inserted in the bowel, generally on the colon, there is said to be liability to intestinal catarrh, diarrhœa, the stools being sometimes tinted with blood. There may be various aches and pains, varying in different cases; and in a case recently in "Martha" ward there was retention of urine for a time. You may find a souffle in the tumour synchronous with the mother's pulse; and, as in two cases lately in the same ward, you may find the fœtal heart in an unusual position; in the two cases referred to, heard best with the stethoscope applied over the inguinal canal. Examining in an early stage, you may be unable to detect anything abnormal; or you may find in the region of a tube a rounded mobile tumour of the size of a nut or a hen's egg; or, it may be, behind the uterus. As the tumour grows, it generally gets behind the uterus, pushing it forwards and a little upwards. The whole mass gets fixed in the pelvis, and may have an elastic or a solid feeling; it may be like a retroverted gravid uterus, or like a perimetritic mass, or a hæmatocele. If the fœtus survives, or if the placenta grows, as it sometimes does after the fœtus is dead, the tumour increases, but not generally in shape and position as a uterine pregnancy increases. An advanced abdominal pregnancy may closely resemble a natural pregnancy; but the uterus is generally felt distinct from the fœtal sac, enlarged greatly, and, as already said, generally in front of the fœtal sac. The cervix changes as in pregnancy, but its characters are not so distinct, and therefore not so reliable. This point needs more study.

The great mass of cases is tubal, and in the great majority of them the fœtus dies early and without any apparent cause. The progress of pregnancy is thus arrested, and milk generally appears

in the breasts if the fœtus is not in a very early stage of its existence. Symptoms disappear, and, the fœtal heart having been heard, the woman returns to show herself quite comfortable; after years of absence the shrunken fœtal sac being easily discovered. How often the favourable progress occurs and how long it may endure nobody can tell—oftener, I dare say, than seems to be now generally supposed. Of the changes that may occur I shall say almost nothing: suppuration of the sac and discharge of its contents, as happens in perimetric abscess; decomposition of the fœtus and discharge of the whole contents of the sac; mummification of the fœtus, as in missed abortion; or the formation of lithopædion.

A striking accident in extra-uterine gestation is the occurrence of uterine hemorrhage, generally slight and at irregular intervals, and sometimes accompanied with abortion or labour pains and the discharge of decidua. There may be no hemorrhage, no labour pains, no discharge of decidua. The hemorrhage may have a periodic character and resemble menstruation. The discharge of decidua may be in shreds or in a regular entire uterine cast. It is only when it is an entire uterine cast, rich in bloodvessels, and as thick as a penny or as two pennies, that you can make it a sign of extra-uterine gestation. You are familiar with the little shreds of mucous membrane discharged sometimes in healthy menstruation, and with the discharge in dysmenorrhœa membranosa. In the latter the discharge is a thin membrane, and almost always lacerated. For myself, I can say that I have not seen the entire, thick, rich decidua discharged in one piece except in extra-uterine gestation, and in cases where I suspected or satisfied myself of very early abortion.

There is reason to believe that the pain of strong tubal contractions is intense, and women have intense pain at or before rupture, and at such times it often happens that simultaneously the uterus casts off the decidua by proper uterine contractions. The tubal contraction causes rupture; the uterine causes separation and expulsion of decidua. Sometimes the expulsion of decidua is contemporaneous with the death of the fœtus, not always. The decidual cast may be thrown off, and the pregnancy advance. A tubal gestation generally ruptures, but not always. As a consequence you have the great accident—one really awful—anæmic collapse from rupture of the sac and intra-peritoneal hemorrhage. This may be the first intimation to you of the existence of this morbid pregnancy, and it not rarely occurs when pregnancy is not even suspected. Generally it occurs before the end of the second month. If you look at these specimens from the museum, you will see they are all in very early pregnancy, and one presents an opening not much bigger than a large pin's head in a sac scarcely larger than a good hazel-nut.

In the state of collapse you may not be able to recognise the hemorrhage by physical examination, or you may find the uterus pressed somewhat forwards and a baggy feeling behind it. As you would expect, the hemorrhage generally fills the pouch of Douglas first and then adjacent parts. Judging by a case recently under observation by myself and others, I can assert that the hemorrhage may be great without making the pouch of Douglas replete, the blood lying in the flanks beneath the intestines. In ordinary cases, if the woman survives, you soon—that is, in twenty-four or thirty-six hours—have the characters of hæmatocele, and generally of retro-uterine hæmatocele. In none of the many cases which have come under my observation have I seen a hæmatoma of the broad ligament, and beneath it, a condition which might be produced when a tubal pregnancy ruptures into the tissues separating the layers of the broad ligament. I have seen cases where the greatest collapse was, as I have just said, accompanied by no physical evidence of hemorrhage in the pelvis, and it should not be forgotten that it is widely held that collapse produced by rupture and intra-peritoneal hemorrhage may be intense, far beyond what the mere amount of blood lost would entail.

This intra-peritoneal hemorrhage is a terrible accident, and has often been said to be always fatal, either primarily or as a form of hæmatocele. This is not the case. Many die. Many cases are never diagnosed exactly from hæmatocele, and behave as hæmatoceles, complete recovery resulting. Many years ago a patient sent for me, saying she had the pains of abortion, and showing me what she regarded as the ovum; it was a complete decidual uterine cast. A few hours afterwards she had the most profound collapse—pulseless, cold, and as if dying there and then. This state lasted for nearly two days. At first a boggy feeling was detected in Douglas's pouch, but before the collapse was quite gone there were all the physical signs of retro-uterine hæmatocele. In consequence of slowness of progress of absorption, I opened the sac by bistoury per vaginam, and subsequently regretted I had done so. Chorionic structures were found in the bloody discharges. This woman subsequently bore children. Not long ago, with some eminent colleagues, I saw a case of this kind; none could be worse; the pregnancy was of only a few weeks' standing; there was no discharge of decidua. Examination per vaginam discovered nothing abnormal. Recovery from collapse was quick and complete. The pregnancy went on, and a dead eight-months' fœtus was extracted by laparotomy. Take notice of the important observation in this case—that the rupture of the sac did not arrest the pregnancy, and that there was no discharge of decidua.

It is known that embryonic tissues lodged in the peritoneal cavity behave differently from the same tissues not embryonic; and these facts lend some support to the opinion that the embryo

or even the fœtus may be absorbed. The absorption of the fœtus of several months of age has, so far as I know, been only recently asserted, but many believe in the absorption of an early embryo. I cannot prove it, yet I do not doubt it. The earlier the embryo, the easier will its delicate tissues be changed and absorbed. How old a fœtus may be so dealt with in the peritoneal cavity I cannot even guess, but I may say that it would require very strong evidence to make me believe that one so old as six weeks, when ossification has begun, may disappear entirely in this way. Cases have been described as of extra-uterine gestation where, in laparotomy, no ovuline structures were found, only blood; and I have seen one such. But I think such diagnosis erroneous, for I believe that long before the absorption of the ovum the blood would be absorbed. No doubt in some such cases the diagnosis, after the failure to find the ovum in laparotomy, may be correct, for every pouch of the hæmatocele or of the hæmatoma may not have been explored. Where no ovuline structures are found, after due search, the diagnosis should be hæmatocele. The hæmatocele is certain; the extra-uterine gestation is at least questionable. Another accident I have watched, in the days when early laparotomy was not thought of—namely, repeated attacks of acute peritonitis. These arose from growth of the fœtal sac causing ruptures of surrounding adhesions.

Now we come to the very difficult and unsettled subject of treatment, and first it must be noted that many cases require and get no treatment. There are many cases in which the disease is never even suspected; the fœtus dies, and is, so to speak, entombed. It may be found accidentally at a necropsy. The only fine specimen of a lithopædion I ever possessed was so discovered. Several cases have occurred to me when the first intimation of the disease was the discharge of fœtal bones, a subject I have already alluded to. We have had cases in "Martha" where the disease, which caused ill-defined suffering, was absolutely diagnosed by hearing the fœtal heart, and where nothing was done, the fœtus dying while the patient was in the ward; and in some of these cases we know that the patient remains in good health, with the dried-up fœtus entombed in the abdomen. This entombment does not prevent the occurrence of another extra-uterine pregnancy, does not prevent the occurrence of a natural pregnancy and a natural parturition. But, no doubt, it is a standing menace to the woman's health and safety.

Death of the fœtus almost always implies arrest of the progress of the case; not always and altogether so, for sometimes the placenta grows after fœtal death. Hence it has naturally come to be a great object of treatment to secure the death of the fœtus. We may say that, before the laparotomy enthusiasm of recent times, it was the great object of treatment of a progressing

case. Now, I have told you that often, very often, and without any apparent cause, the fœtus dies early, and this occurrence makes judgment of the value of fœticide treatment difficult. To secure the death of a fœtus three methods are adopted: drawing off the liquor amnii, injection of morphia into the fœtal sac or fœtus, and electricity or galvanism. Paracentesis of the amniotic sac does not secure anything in normal pregnancy, nor does it in extra-uterine; and the same is true of both the other methods. I have no faith in any of them; and it is to be remembered that none of them is sure to be harmless, however carefully performed. Any of them may bring to an end the frail life of the fœtus; none of them, nor a combination of them, secures this termination. Then comes removal by surgical operation, chiefly by laparotomy. You may, as lately in "Martha," find cases tempting to removal per rectum or per vaginam, the fœtal sac offering itself in one or other of these passages, or being already actually open. But, in general, it is laparotomy that you have to consider. When the fœtus is already viable or farther advanced, you will think of early laparotomy and keep in mind the great danger of hemorrhage from separation of the placenta, which you have no satisfactory means of arresting. The good rule, at present at least, is to meddle with the placenta as little as possible, and to keep the emptied sac as aseptic as you can, after removal of the fœtus. The danger of hemorrhage is greatly diminished by the fœtus being long dead, say for some weeks; and it may well happen that to secure this diminution of danger when the fœtus is long dead, delay may be advisable. In an early stage, when anæmic collapse comes, immediate or primary laparotomy has been recommended, but it has seldom been done. The patient is so nearly dead that the surgeon declines to interfere, on the ground that he feels sure the patient would die on the table. Besides, the diagnosis is often insecure, and true surgical courage does not flourish under an insecure diagnosis. Of insecurity of diagnosis, felt at the time, we had a fine example lately in "Martha." Into all its details I need not enter, only remarking that in the very imperfect history we had ordinary symptoms and signs of pregnancy and of hæmatocele coming suddenly, with profound collapse; and pain when in the ward, chiefly in the hypogastric region. We decided to wait. She aborted of a six-weeks' fœtus, and died. The viscera in the roof of the pelvis were matted together by recent inflammation. There was a perforating ulcer of the stomach and acute purulent peritonitis near this part. The operation of laparotomy and extirpation has been successfully done in or close to the period of collapse. It has been often done on recovery from the collapse. Indeed, I may say that at present it is the proceeding most relied on. It or waiting are the alternatives.

What will be the ultimate result of the present enthusiasm for abdominal surgery no one can foresee. In extra-uterine gestation much has yet to be done before the utility of laparotomy can be well defined. We need more knowledge of the natural progress of the disease, more knowledge of the anatomy, more experience in laparotomy. Already much is surely to be gained by judicious laparotomy, and more is to be expected in the future.—*Lancet, July* 13, 1889, *p.* 53.

93.—ON THE TREATMENT OF PLACENTA PRÆVIA, AND THE METHODS OF RESTRAINING HEMORRHAGE.

By J. Braxton Hicks, M.D., F.R.S., Obstetric Physician to St. Mary's Hospital; Cons. Obs. Phys. to Guy's Hospital, London.

Having accepted the rule that as soon as we ascertain the case t be one of placenta prævia, we should make arrangements for terminating the pregnancy at the earliest possible time, our next consideration is: In what way and by what means we shall accomplish this? Perhaps it will clear the ground, if before we proceed in this direction we take note of the main points we have to combat.

Firstly, we desire to prevent further bleeding.

Secondly, we wish to overcome the resistance the substance of the placenta presents to the passage of the fœtus. But also, we cannot in the majority of these cases leave out of consideration the state of anæmia which the patient presents from the hemorrhage which has already occurred; sometimes so profound that the smallest movement, even ordinary examination, extinguishes the pulse. Of course, in all cases, it behoves us to carry out our manipulations with as much gentleness as possible, choosing, especially in the severer cases of anæmia, that plan the least disturbing. Let me consider these points more completely:—1. The bleeding can be stopped by pressure: either by tampon; by the head pressed down by the uterine efforts, or drawn down by the forceps; or by the leg and breech drawn down if presenting, or made to present by turning.

With regard to pressure by the tampon, I believe the general consensus in British midwifery is against its use, and with this I am in accord; partly, because, unless perfectly done, and this is difficult, it is of no use; and if perfectly done, it is very distressing to the patient, especially if it is necessary, which it often is, to renew it to avoid septic generation. Still, it has some advantages, because by distending the roof of the vagina, we also dilate the os, and provoke uterine action. But its action is tedious, and lacks the precision afforded us by the more recent method.

The uterine action alone will occasionally suffice to produce sufficient pressure on the inner surface of the placenta to stay bleeding, though it requires the head to be entering the os before

it can efficiently do this; so that if we found the os uteri fully dilated, the placenta marginal and the membranes tense, we might rupture the membranes, and if the head descended we should not expect further bleeding, and the case may be allowed to end naturally. But practically speaking, these cases are not the most frequent. If the placenta were mainly over the expanded os when the membranes were ruptured, the head retarded by the bulk of placenta, would not effectively enter, and then it would be our best plan to press the flap of placenta aside, and apply forceps, drawing down head into os, retaining it there by gently hanging on to the forceps till the pains were sufficient to expel the head, assisting them by gentle traction.

But it is very possible that we may have no forceps, and for one reason or another the head is unable to enter the os. Then we are under the necessity, in order to place our patient in safety, to bring the breech to the os by turning. This can be accomplished by either slowly pushing the hand through the os, seizing the leg, and bringing the breech into the os; or by the combined external and internal version, effecting the same result in a gentler way. Of course, if the breech present originally all that will be needful will be to bring down the leg, fixing the breech in the os. The hand should retain hold of the leg, so that the weight of the arm gives pressure sufficient to prevent further bleeding. The great object of these manœuvres is to produce pressure enough to check bleeding, and this pressure need not be much. In both the employment of the forceps and in turning the action is not for instant delivery; as soon as the os is plugged by head or breech, the object is accomplished, a little additional traction, as the pains come on, sufficing for the delivery, which may be left mainly to nature. Thus we gain time, valuable to the patient, wherein we can sustain her energies, while the circulation recovers its balance. When the os is fully expanded, the engaging firmly of head or breech is followed in an hour or two by uterine action. Supposing the os is not sufficiently expanded to introduce forceps or to readily turn, then the os uteri can be expanded by the dilating bags, or, in the event of our not having them, the os could be gently dilated by the fingers introduced one by one. But if the os is so small as that, then I think the best plan would be to proceed by the combined method of version, as the leg and breech being of conical form, it assists dilatation, and as the os expands it keeps up a corresponding pressure on the bleeding surface, for it has been constantly found in a large number of cases, that if very slight traction is kept up just at first no further bleeding has recurred.

If with all these states of os uteri, particularly if small, the placenta be attached more or less across, it is of much advantage to separate gently the placenta for a forefinger's length. This very distinctly releases the lower portion of the uterus from the restraint

caused by the attachment of the placenta, and this is very noticeable if the margin of the placenta be across the os, because the margin is the part most firmly adherent to the uterus. At the same time the flap of the placenta somewhat retracts, and is pushed aside as the head or breech descends. If the membranes are perfect then they need not be ruptured till the act of version, and when this occurs a still further easement is felt in respect of the rigidity.

Now with respect to the detachment of the placenta from around the os, it is necessary to make a few remarks:—1st. The act of doing it may be attended with severe and continued hemorrhage, particularly in central insertion of the placenta. In two cases which occurred to myself with central insertion, I was alarmed at the large flow, which was only restrained by penetrating the centre of the placenta, performing version, and bringing the leg through the os, which was so small that scarcely two fingers could enter.

To discuss the source of this bleeding would, I am afraid, take up too much of the time allotted me, and therefore I would call attention to the practical fact that sometimes in detaching the placenta we have severe bleeding, whilst at other times we may not; indeed, these cases are the more frequent, and it has practically been found that a free, bold detachment of the placenta as far as the finger can reach, has the effect in a large number of cases of checking the bleeding for a time, and thus we come to another means of restraining bleeding in placenta prævia. But inasmuch as by this action we have the placenta partially detached, and as our experience tells us that both in "accidental" and post-partum hemorrhage there is with partial detachment liability to floodings, so when we employ this method as one which will give us time by temporarily restraining bleeding whilst the os uteri is dilating, yet we must treat it as a measure itself requiring supervision. This my experience bears out. In other words, it is imperative that we should be in close attendance on the patient, ready to act should any bleeding of importance occur; the action indicated being of course either to bring the head down by forceps, or breech by turning. We must also remember when we detach the placenta we cut off the fœtus from its aeration to the same amount, and although it may be said that when it comes through the os about the same amount of placenta will be made useless by pressure, yet it may be rejoined that the effect of the detachment will generally extend many hours longer than that of the pressure. If the placenta be inserted more or less centrally, these considerations do not enter, for the placenta sooner or later must be detached to an extent probably fatal to the child.

I would venture a suggestion here, in order to lessen the bleeding on detaching the placenta, that the finger should keep close to the uterine surface, rather pressing it from the surface of the placenta than the placenta from the uterus. If this plan does not lessen

the loss from the maternal side it will prevent loss from the fœtal villi, which must occur when we lacerate the placenta.

Now there is a certain class of cases, practically the more numerous, in which there has been severe loss, and it is necessary to secure the safety of the patient, but where the os is so small that we cannot put in operation the foregoing plans, so also where, although the os uteri be somewhat expanded, we have at hand neither forceps nor dilating bags, or where in peeling off the placenta we are confronted with alarming blood loss; in these cases the only plan we have at command is version by combined internal and external method, and it is in these cases we see its great advantages. But when this method of version is used it must always be understood that it is not the version itself which is the hæmostatic remedy, but that by it we are enabled to bring the fœtal breech down on the placenta from within, and so are able at an earlier date than otherwise possible to stay the flow. It is possible in some cases to dilate the os with fingers, and after some time and with more or less force to pass the hand through the os and so reach the leg, but I feel quite sure that anyone who has tried the two plans will without hesitation pronounce in favour of version by the newer method, and it is interesting to note that, although very little or no uterine action was observed before turning, yet shortly after the leg had been brought in through the os the pains commence and continue, so that labour is accomplished without requiring much assistance from the attendant often within a couple of hours.

But in selecting our plans for the safety of the mother we cannot leave out of consideration the preservation of the child so far as possible; and here I think we shall all agree in choosing, where the state of the os, the position of the placenta, and the condition of the mother permit it, delivery by the head as the most likely to secure its safety, that is to say, with a fully expanded os and placenta marginal. But when the os is only large enough for two fingers, and the placenta much across the os or central, the time which elapses before labour is over, and the great reduction of its aeration adds so much to its jeopardy, that the extra risk produced by pressure on its funis as the result of turning is scarcely to be taken into calculation. In either case the death-rate is very high. But if for any reason there has been laceration of the placenta there will also be laceration of the villi, and in consequence an oozing of blood will be going on serious to the vitality of the child, if it be free or continuing during long hours whilst we are waiting for the expansion of the os and pressure of the head, so that risk by pressure on funis after turning is, I think, pretty evenly balanced in the other mode by the loss of its blood. If after gently detaching the placenta just enough to set free the lower portion of expansion we quickly bring the leg or breech into the os, all loss from the placenta

is checked, as it is at the same time from the maternal vessels. In all cases of placenta prævia before end of seventh month, and where we know fœtus is dead, of course the question of preserving fœtal life does not arise.

In those cases where the anæmia is so profound that almost the least movement eclipses the pulse, our difficulties are very great, but whatever we do we must do it with extreme gentleness. Our first object is of course to prevent further loss while we sustain the powers by restoratives and till the circulation recovers its balance. If there be no bleeding we had better wait, but keeping watch at the bedside in case it return. Should it do so, or when the patient has rallied, we may elect to use forceps or combined version, according to circumstances. But as detachment of the placenta may be attended by more or less blood loss, I should not advise this method. But these cases are so formidable, that often before we see them their fate is sealed, and while we are waiting for the rallying, already coagula in the heart have formed, and slowly but surely block the current.—*Medical Press and Cir., Aug.* 28, *p.* 195.

94.—ON A VARIETY OF POST-PARTUM SHOCK: ITS NATURE, CAUSE, AND PREVENTION.

By J. Haig Ferguson, M.B., F.R.C.P.E., Clinical Gynæcological Tutor in the Royal Infirmary, Edinburgh.

In this paper I desire to make some observations on three cases of post-partum shock which have come under my notice, one in my own practice and two of which I have had the privilege of seeing with Dr. Halliday Croom.

The patients were all young healthy women of decidedly nervous temperaments, two of them primiparæ and one a iv.-para. There was nothing specially remarkable about the first or second stage of labour in any of them, except that two were low forceps cases, and two of them had chloroform administered towards the end of the second stage. Forceps were applied to prevent exhaustion and for fear of impending inertia. None of the patients lost more than about twelve ounces of blood in the third stage, their uteri contracted firmly and well, and in no sense of the word did they suffer from post-partum hemorrhage, concealed or otherwise. Yet they all manifested decided symptoms of syncope and shock, became perfectly unconscious, with feeble, rapid, irregular, sometimes imperceptible radial pulse, dilated pupils, shallow irregular breathing, and cold, clammy perspiration. The face, at first anxious, soon developed a vacant, torpid expression, and sensibility to pain absolutely and entirely disappeared.

This state of matters lasted for about three hours—fully longer in one of the cases—and there was of course complete inability to swallow. Free injection of stimulants both into the rectum and

under the skin, and champagne by the mouth as soon as the power of swallowing returned, gradually, as it were, brought them back again to life. Sinapisms were freely applied to the præcordia, and it was with great difficulty that the body heat could be maintained in spite of hot-water bottles, hot blankets, and gentle massage. In from eight to twelve hours they had, to all appearance, quite recovered from the effects of the shock, and beyond a feeling of exhaustion, and some degree of tenderness in the lower part of the abdomen, nothing unusual was to be remarked. Their memory was a complete blank during the greater part of the attack.

What, then, was the cause of these alarming manifestations? For alarming they most certainly were, even for a time making one fear that life had become almost extinct. And what lesson can be gathered from these three cases, so alike in their symptoms and in their termination?

Firstly, as to the cause. Nothing unusual occurred in the first or second stage in any of the cases, and the patients up to the beginning of the third stage were in an entirely satisfactory condition. It is to the third stage, then, that one must look for an explanation of the phenomena.

All the patients complained of unusual tenderness when the uterus was grasped by the hand in the usual way through the abdominal wall after the expulsion of the child; and when the uterus was compressed more forcibly, according to Credé's method, in order to squeeze out the separated placenta, the pain became so intolerable as to completely awaken them from their partial anæsthesia, and they shrieked in agony, declaring it to be worse than the whole labour put together. In one of the cases the uterus was somewhat soft and flabby, and it had to be kneaded pretty energetically before it contracted satisfactorily. There was, however, no hemorrhage to speak of. The shock in each case occurred either during or immediately after the expulsion of the placenta from the vagina, and when the uterus was being firmly grasped through the abdominal wall. There can be no doubt that the cause of the symptoms was the fact that one or both ovaries were being squeezed and bruised by the pressure of the external hand compressing one or both against the hard contracted uterus. This accounts equally for the exquisite pain from which the patients suffered when the uterus was being compressed, and for the syncope which supervened on the intense shock thus produced.

The reason such an accident does not occur more frequently is because the ovary, as a rule, slips away from beneath the grasp of the hand and so escapes injury, or at least is but slightly irritated. I cannot but think it, however, of the highest importance that the avoidance of such a risk as I have been endeavouring to describe should not be left to the off-chance of the ovary accidentally eluding the grasp of the compressing hand, but that the accoucheur

should have a clear idea that if he grasps the uterus in a certain way he will, as far as it is possible to do so, avoid coming in contact with the ovaries. It is to this point I wish specially to direct attention, as no notice is taken of it in the well-known descriptions of Credé's method.

Spiegelberg says, in describing the management of the third stage,—"The hand grasps the uterus in such a way that its ulnar side sinks deeply down behind it, the entire hollow of the hand lying on the fundus and the thumb on the anterior wall." Playfair and Lusk say exactly the same, as also does Charpentier. Grandin of New York says that "the uterus is grasped by both hands, the fingers towards the pubes, and compression is made." Credé figures the hand grasping the uterus with the thumb behind the symphysis pubis and the fingers in front of the promontory of the sacrum.

Now, from these and many similar statements it is inferred, and Grandin distinctly states in effect, that in order to grasp the uterus antero-posteriorly the ulnar side of the compressing hand must be in relation to the promontory of the sacrum posteriorly and the thumb behind the symphysis pubis. What I wish to point out is, that if the hand is in this position the uterus is not, as a rule, grasped antero-posteriorly, and that the ovaries are consequently in imminent danger. In other words, *that the term antero-posterior* quâ *the pelvis is not antero-posterior* quâ *the uterus in the majority of cases.* As is well known, the uterus in pregnancy becomes usually rotated to the right on its longitudinal axis, so that the left ovary comes to lie more anteriorly, while the right ovary lies more posteriorly. It is to be remembered that in pregnancy the ovaries are in close contact with the lateral walls of the uterus, owing to the shortening and splitting up of the broad ligaments.

It will thus be seen that if the hand attempt to compress the uterus in an antero-posterior direction *quâ* the pelvis, that is, with the ulnar side of the hand in front of the promontory of the sacrum and the thumb behind the symphysis pubis, the ovaries in many cases run great risk of being included in the grasp. In the majority of cases they escape by slipping from beneath the fingers as I have stated above, or in the attempts which the hand makes to grasp the uterus the accoucheur accidentally and quite unwittingly twists the uterus round, so that its antero-posterior axis and the antero-posterior diameter of the pelvis correspond. To avoid the danger of touching the ovaries, and to make sure of grasping the uterus antero-posteriorly, the hand should be passed into the brim of the pelvis obliquely, and as we can almost infer that in 99 per cent. of all vertex cases the uterus is rotated to the right, the ulnar side of the hand should be pressed deeply down in the direction of the left sacro-iliac synchondrosis, while the thumb should be behind the right ilio-pectineal eminence, the fundus of the uterus resting in the hollow of the palm. In the vast majority of

cases such a grasp of the uterus will entirely avoid the ovaries, and firm compression can be safely made without causing the patient much pain or inconvenience (see figure).

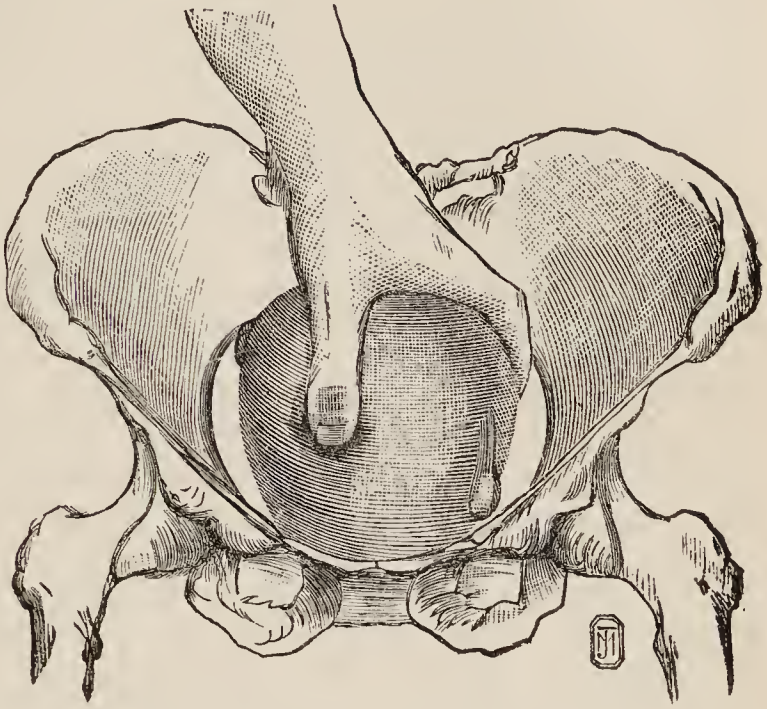


Fig.—Diagram to show the oblique position the uterus occupies in the pelvis after the second stage of labour. The uterus is represented as being pushed down in the pelvis by the hand, which is grasping it antero-posteriorly. Note the oblique position of the hand in relation to the pelvis. It will be seen that the right ovary lies on a higher level than the left.

If a patient should complain of severe pain during the manipulation of the post-partum uterus, one should always fear that the ovaries are being compressed at the same time. It is in some cases easy to feel the ovaries through the abdominal wall, and thus one is enabled to avoid them. It depends on the temperament of the patient to a great extent, as well as on the amount of bruising to which the ovaries are subjected, whether the symptoms produced by compression of the ovaries will be severe or not. True, it is not often that such alarming reflex symptoms occur as were observed in these three cases, yet there can be no doubt that the ovaries should, as far as possible, be guarded from all sources of irritation, and that every care should be taken to prevent their being injured during the third stage of labour and immediately post-partum.—*Edinburgh Medical Journal, July* 1889, *p.* 33.

95.—ON THE TREATMENT OF UTERINE TUMOURS BY ELECTRICITY.

By Thomas Keith, M.D., LL.D.

The only treatment—not surgical—worth speaking about that I have seen do any good, and which, at the same time, is one free from danger to life if the treatment be undertaken by one who has respect for a strong electrical current, is that brought before us by Dr. Apostoli. If anyone should have held on firmly to hysterectomy it is myself, for my results after it are better than

those of any other. I have, however, thrown over all surgical operations for this new treatment, and the longer I follow it the more am I satisfied.

To the surgeon, no doubt, hysterectomy is the good and simple plan. He may have his bad quarter of an hour at the operation, but then he is practically done with the case, and he gets his result quickly, sometimes more quickly than he cares for. If the patient recover, there is pleasure all round; if things go badly and the patient die, he bewails his bad luck, as it is called, more or less, according to his temperament, waits a little, and then, though rather unwillingly, does another. He resents any other treatment than that by the knife. He especially resents Apostoli's treatment of fibroids by electricity, for the result is long in coming; it is a slow treatment, requiring great patience, great tenderness of manipulation, and much thinking. A knowledge of electricity is also essential, and the more knowledge on this subject the better, for without it no progress or improvement can be reasonable expected. Two or three months, if the intervals between the periods be short, may pass away quickly without much sign of amendment, and the patient and friends are apt to be discouraged; or the patient, from the tonic effect which electricity has upon some, feels better, becomes inclined to do too much, overtaxes her strength, gets a chill, with perhaps pain in the tumour, and a temporary disturbance of temperature; but with patience the result is certain, and more or less of improvement takes place. The patient becomes able to walk about and enjoy life. She has no longer the dread of the period constantly before her; she no longer takes to bed days before its appearance; and she no longer needs morphine to relieve pain before or during it. The flow soon slips on without her knowledge; she is not in bed at all, or only in the worst cases for a day or two, and that more as a precaution than that there is any need for so doing. Then there is no mutilation, a thing abhorrent to most women. This is what Apostoli's treatment almost always does if carefully and intelligently carried out to the end. It puts a woman with a fibrous tumour who suffers much, into the position of a woman with a fibrous tumour who does not suffer, or may be even unaware of its presence. It does not bring about the disappearance of the tumour, or it does so very rarely, but the size is lessened more or less—one-half, one-third, two-thirds. Tension is taken off everywhere all round, and bladder irritability from pressure, a common cause of distress, is relieved. In a word, the woman is made well, her whole life is changed. All this can be done without danger to life, and if there be pain during the time the current passes, the fault is in the operator. What more does a reasonable woman who has suffered much desire or need?

And what is the true mortality after hysterectomy performed by those surgeons who condemn Apostoli's treatment? Performed

as all their operations are in private houses and in small special or private hospitals that have practically all the advantages of a private house—by far the best and safest place for any surgical operation—they ought to show a result of under 4 per cent. No one but myself has till now given an account of every operation of this kind done by him. Last year I put the mortality at 25 per cent.; if in these be included deaths from imperfect operations and exploratory incisions, I would place the mortality at a much higher rate.

It is apt to be forgotten that only a small proportion of fibrous tumours need any treatment at all. A number of women go through life unaware of the existence of any growth until it is revealed by some accidental circumstance. A patient's fears are generally easily allayed as she feels quite well, and when the matter is fairly explained to her, she is satisfied to let well alone. Yet these simple cases constantly come to one in great alarm, having been told that without some operation they would not live more than a few months; such cases do not need to be treated by electricity or by anything else; they are best let alone.

I do not propose to go into the details of cases. There is, however, one that I must shortly mention here, as it is the only one in which anything like harm followed the treatment. I do not say that the treatmeat was of itself the cause of death, which, I am satisfied, need not have happened; and in this I am borne out by the opinion of the patient's brother, a medical man.

An unmarried lady, 40 years of age, came for treatment in the middle of February, 1888. She had a large soft fibroid, extending well under the ribs on either side. The tumour was first noticed six years before, when it was already of some size. She had neither pain nor hemorrhage, and treatment was undertaken simply with the view of reducing the size of the tumour. The case was one which never gave me a moment's anxiety. The uterine cavity was only $3\frac{1}{2}$ inches. It was a case of soft fibroid coming off from the fundus of the uterus. On March 2nd it was noted that the tumour was already free of the ribs, and there was then observed a swelling which at first was thought to be an enlarged spleen; this turned out to be an outgrowth from the tumour itself. On March 21st the tumour was smaller all over and completely free of the ribs. On the 13th careful measurements were taken, and the diminution was found to be very marked. Indeed, I could almost push the now much softened tumour to the left side of the middle line. This caused a little pain, and she then told me that for a day or two she had felt tenderness in the left side over the portion that we at one time looked upon as a big spleen; so I proposed not to give the current that day, but she made light of the pain, and, as this was to be the last application in Edinburgh, it was given, though only half the strength that she usually bore so well. She had had in all eighteen negative applications, and she intended to

come South and continue the treatment if necessary. I never saw her again. Sixteen days after I came to London I had a letter from a medical friend in Edinburgh who had been asked to see her. She had gone about a good deal, the weather was bitterly cold, and she had got a chill. She had severe pain over the region of the spleen, with fever. This continued for four days, and was followed by vomiting and some diarrhœa. She then began to improve, was sitting up, and talking of going South as soon as she was able. The night before I heard of her she was seized with two floodings during the night, so severe that she was for some time pulseless after the second attack. The hemorrhage then ceased, but there was a sudden return of it next day, and she died during it. Scarcely any alarm was taken. One cannot help thinking that plugging the cervix or vagina, which in her case was extremely small and short, might have saved her, as I have seen it save many others. The lesson this unfortunate case has given me is to impress upon patients the necessity of great care during the time that electrical treatment is being carried on, especially when negative electricity is being used.

The old spirit that at one time would have no abdominal surgery still unfortunately lingers amongst us. Electricity in any form, when applied to the cure of disease, is set down as pure quackery by many medical men, simply because they know nothing about it, and won't take the trouble to learn for themselves what to many is rather a hard study. We are at the beginning of a great change in the treatment of many diseases by electricity in some form. My confidence in its powers and in its capabilities in relieving the disturbing symptoms of uterine fibroids, as well as in curing many chronic inflammatory conditions in the pelvis, continues to increase. I venture to predict that the gynæcological bag, as at present filled, will have soon to be reconstructed, and that most of its present contents will be thrown out. I have no fears for the future of electricity. It would indeed be strange if the power that has given us the telephone and the phonograph could not in some way be rendered available for the curing of some of our many diseases. I do not say that the work is easy. I have already seen enough of it to know that it requires excessive care and much patience. It has already given us disappointment in some things, due probably to our ignorance, and difficulties have been met with, but such as merely stimulate one to overcome them. It unfortunately takes up much of one's time, and this is a great trouble in carrying out the treatment in the meantime in the way that it should be done, more especially in a place like London, though almost every day's experience helps us in some way, either in the saving of time or in making the applications more certain and more easy to the patients. From not a few cases that have lately come to me, where the patients have got scared by the pain produced

after two or three applications, I am inclined to thing that it is being tried by some who do not yet understand the current, who manage it badly, or who try it in unsuitable cases, thus we hear of attacks of fever, of putrid discharges, and of tumours made to slough—accidents arising from some wrong in the administration or from want of care in the antiseptics. Several had little or nothing the matter with them except the presence of a painless tumour till the electrical treatment was begun to cure it. Though the method may be sometimes abused, or the current managed unskilfully or painfully, the operator, not the electricity, must generally be blamed for these things.

What I now plead for is, that for a time, all bloody operations for the treatment of uterine fibroids should cease, and that Dr. Apostoli's treatment, as practised by him, should have a fair trial. Those who have hitherto most resisted the introduction of electricity are the surgeons who are the best competent to carry it out. They are accustomed to manipulate in the pelvis, and they will not make mistakes of diagnosis, or make them as seldom as it is possible to do. Hysterectomy, remember, which is performed every day for a complaint that rarely of itself shortens life, kills every fourth or fifth woman who is subjected to it. This mortality must cease; it is not a question of surgery, it is a question of humanity. Every time that any disease can be cured without resorting to a bloody and dangerous operation such as hysterectomy, progress is made in our art, and there is a gain to humanity, while surgery is the better for being purged of a deadly operation. Even the fact that in my cases of hysterectomy the removal of the uterus and ovaries was sooner or later followed by insanity in 10 per cent. of the whole number is enough for me to condemn any operation that removes these organs. It may seem strange to some, that after the results I got in hysterectomy—results that almost made it justifiable—I should now begin to throw stones at the operation instead of trying still farther to improve upon it; and but for Dr. Apostoli, I should now be doing so. I would give something to have back again those sixty-four women that I did hysterectomy for, that I might have a trial of Dr. Apostoli's treatment upon them; and I would give something never to have had the tear and wear of flesh and spirit that these operations cost me, for in scarcely one of them was the operation simple.

I have, in the meantime, said my say, and it must not be forgotten that the opinion here expressed as to the value of Dr. Apostoli's treatment is not that of an unsuccessful surgeon, but is the deliberate opinion of one who was the first to lower to a minimum the mortality that so long followed abdominal surgery, and who, by the best results yet obtained in hysterectomy—results that Dr. Playfair is pleased to call almost phenomenal—still retains the position.—*British Med. Journal, June* 8, 1889, *p.* 1282.

96.—ON THE VALUE OF ELECTRICITY IN GYNÆCOLOGY.

By W. S. Playfair, M.D., F.R.C.P., Professor of Obstetric Medicine in King's College, London.

I think it is a pity that the attention of the profession has been, to a great extent, limited to the effects claimed for negative electro-puncture in promoting the absorption of large fibro-myomata, to the exclusion of what seems to me far more useful applications of the treatment. I believe there is sufficient evidence to prove that the negative current has some influence in this direction; but I am satisfied that it will never come nearly up to the expectations that have been formed of it. Moreover, it has not been sufficiently realised that the number of non-hemorrhagic fibroids that require interference is very small indeed. It is only when they are so situated as to produce injurious pressure symptoms, as, for example, when they are impacted in the pelvic cavity, or when they interfere with micturition or defæcation or the like, that we are justified in using a remedy which has been clearly proved in some cases, which may be exceptional but still exist, to be not in itself devoid of danger. Indeed, this is the only application of electricity which, so far as I have been able to learn, has any serious risk connected with it. There can be no question that several cases of sloughing and suppuration have followed its use, which, though often ending in cure, have endangered the life of the patient. If electro-negative puncture is used as an alternative for hysterectomy, or in the hope of avoiding that operation, then it is clearly admissible, for the risk of the two procedures cannot be for a moment compared.

Holding these views as to the application of the remedy, my experience of it in promoting the absorption of non-hemorrhagic fibroids is comparatively small; for I have only used it in a few cases in which the urgency of the symptoms seemed to me to justify interference. I have elsewhere published one case in which a few applications of the negative current by electro-puncture reduced in size a mass of fibroid which was impacted so firmly in the pelvic cavity as to have rendered micturition impossible, and made the use of the catheter necessary for upwards of a year. After five applications of the current, at a strength of 100 milliampères, the tumour was so reduced in size that all pressure symptoms disappeared, and it has given rise to no trouble since, although more than a year has elapsed.

Now, soon after this case was treated, Dr. Matthews Duncan and Mr. Meredith read papers on impacted fibroid of this type at the Obstetrical Society. Neither of these gentlemen even alluded to the possibility of diminishing the impacted mass by electricity. My friend Mr. Meredith actually performed hysterectomy in his case, with great difficulty and great risk to the patient, as it is hardly necessary to point out. Now, anyone who will take the trouble to

read my case and Mr. Meredith's cannot fail to see that they were as nearly identical as any two cases can be, and also that a few simple punctures, followed by no discomfort, have permanently relieved the one, while the other has been subjected to all the risks of one of the gravest and most severe of surgical operations. Had I been present at that meeting I should have then said, as I say now, that hysterectomy is not a legitimate operation in such cases until the simple procedure of electro-negative puncture has been tried and failed. Nor is the diminution in size of a fibroid a thing unreasonable to expect, or contrary to experience. There is no fact more clearly proved in gynæcology than that even very large masses of fibro-myomata occasionally spontaneously absorb and practically disappear.

A far safer and more generally applicable use of the remedy is that of the positive current to the uterine cavity as a hæmostatic in cases of hemorrhagic fibroid. I have now treated a large number of cases of this kind, most (if not all) of which had already been treated by all the more ordinary methods in vain. I am as satisfied as I can be of anything medical that in this method we have a very valuable addition to our means of dealing with what is often a very intractable mischief.

Hemorrhages occur chiefly in interstitial and submucous fibroids, projecting more or less into the uterine cavity, and they doubtless arise from lacerations of enlarged vessels in the endometrium, certainly not from the tumour itself. The hæmostatic effect of the intra-uterine electrode is apparently due to its caustic action, and to its causing the mucous membrane to become dense and resistant, and, so far as I have been able to judge, it answers best when the intra-uterine electrode comes accurately into contact with every part of the endometrium. The cases in which its results are not so good are those in which either the uterine cavity is so dilated, or irregular from projection of the tumour, that the platinum sound generally used does not uniformly act upon it. To obviate this defect, carbon electrodes of various sizes have been manufactured, which I am now trying. It is reasonable to suppose that the effects of a remedy of this kind will oftentimes be only temporary —that is precisely what I should anticipate; but controlling or arresting the profuse losses, even for a time, is of itself a great gain, and by a repetition of the application the hemorrhage may be again checked. This is, however, a matter to be tested by experience. In some of my cases, nearly two years have elapsed since they came under treatment, and I have not yet heard of any recurrence.

Beyond all question this treatment is very troublesome, and it involves a strain on the patience both of the practitioner and the patient. A considerable number of sittings is required. I believe that Dr. Keith estimates the average number as from 20 to 30, but I myself have rarely used or required to use half that number.

In the treatment of certain morbid conditions of the endometrium, especially chronic endometritis, uterine catarrh, and membranous dysmenorrhœa, I have found the application of the negative current through the insulated intra-uterine sound produce far more uniformly good effects than any other form of intra-uterine medication with which I am acquainted. I am quite satisfied that there is nothing to compare with this in these very troublesome cases, many of which had lasted for years, and resisted every kind of treatment previously used. I have now notes of several cases of membranous dysmenorrhœa either completely cured or very greatly benefited by four or five intra-uterine applications of this kind, and quite a number of cases of obstinate chronic uterine catarrh of long standing, in which the same can be said. I do not think that I have ever made more than five or six applications. Now, I will confidently appeal to any gynæcologist of experience to state if he is cognisant of any method of dealing with such cases, the obstinacy of which is proverbial, in which similar results have followed so brief a treatment. For neatness, simplicity, and effect I believe it surpasses all other methods of dealing with these conditions of the endometrium, nor have I come across the slightest subsequent inconvenience. (Dr. W. S. Playfair, p. 412.)

I have little experience of the application of the negative current as a means of promoting the absorption of chronic inflammatory exudations in the pelvis, although it is very highly praised by Engelmann and others; I have used it in one or two cases without any very marked effects, and I was led to be sceptical of it having any influence. I have recently, however, had a remarkable case, in which a very considerable exudation, completely fixing the uterus, disappeared so rapidly under its use that I am convinced of its occasional marked influence in this way. This case is in many ways so curious that I am tempted to relate it. Lest I should be supposed to exaggerate the facts, I shall do so chiefly in the words of the lady's medical attendant:

"Last spring, March 25th, 1888, was attacked with violent pain on the left side of the abdomen. Examination revealed a tender swelling over the sigmoid flexure, accompanied by a tendency to obstruction of the bowels, requiring breaking up of fæcal masses. This went on for some weeks, during which the temperature was continuously febrile, and the patient sank into a condition of anorexia and extreme debility. She was seen by Dr. ——, who recognised with me the existence of pelvic peritonitis, but felt inclined to believe that there had been a partial intestinal obstruction, and even spoke of an exploratory operation. At the end of two months, the pain being less, the bowels a little more amenable, and the pyrexia gone, it was then ascertained that she had lost the use of her limbs, and was quite helpless."

After this, the patient came to the neighbourhood of London,

in a condition of total inability to stand or move, and was seen by various consultants. An eminent neurologist, amongst others, saw her and reported the absence of organic spinal disease, and obtained the opinion of an equally eminent surgeon, skilled in gynæcology, who proposed resection of the ovaries and their inflamed attachments. "Dr. —— believed that this would be reasonable, as removing a source of disturbance which was operating to the disadvantage of general remedial measures." A second opinion being desired, before the proposed operation was resolved upon, I was asked to see the patient. I found the uterus fixed in a mass of hard exudation, evidently the result of the antecedent acute disease, which had commenced six months before. The total loss of power, the emaciation, and anorexia, I concluded, were connected with extreme neurotic paresis. I felt it impossible to agree to the serious operation proposed, since the absorption of a deposit of so recent a date seemed to me not hopeless, and even if the operation was performed, it gave no guarantee of the cure of the general neurasthenia. The latter was of a type I was very familiar with, and which I felt hopeful might be cured by a course of systematic treatment. I gave it, therefore, as my opinion that this should be tried in the first instance.

The friends thinking, perhaps erroneously, that in the multitude of counsellors there is wisdom, now sought the advice of a well-known obstetrician. The result the husband reports as follows :—

"On the occasion of my visit to you, in the course of conversation you spoke of Dr. —— in such terms that I decided at once on obtaining his advice. He confirmed your opinion that an operation was not admissible, and prescribed an absorbent (iodide of potassium) and a tonic (tinct. calumbæ), which has since been followed regularly without benefit. He also advocated plenty of good and simple food. In this respect his advice has not been followed, as the patient cannot be induced to eat at all. His opinion is that the treatment you recommended by rest, massage, and feeding will do her harm."

Some weeks having been given to the attempt at following this advice, the patient ultimately came under my care. I need not report her steady improvement so far as her neurotic condition was concerned, except to say that the treatment certainly did not do harm, as in a month she could move freely, had gained over 20 lbs. in weight, and was in perfect physical health. All this time no change had taken place in the pelvic exudation, which remained as dense as before, the uterus being immovably fixed. I now determined to try the negative electric current, and for this purpose introduced a vaginal ball electrode covered with cotton, and passed a current of 100 milliampères every third day. The effects were instantaneous and most remarkable, the pelvic pains

immediately lessened, and the deposit almost melted away. In three weeks there was nothing to be felt; the uterus was freely movable in every direction, and the examination showed a perfectly normal state of the pelvic organs. At the end of two months from coming under my care this lady was walking and driving about in perfect health, having gained 32 lbs. in weight. Now about this case there can be no doubt. Sufficient time had been given to see if improved general health would do anything towards bettering the local mischief, but no benefit followed; the instant the negative current was used an immediate cure was effected. That it was a *propter hoc*, and not merely a *post hoc*, is a conclusion no reasonable man can question. It is a fair argument, moreover, to point out that the use of electricity actually saved this lady from having her ovaries removed by an eminent surgeon who has publicly declared his disbelief in its efficacy. At the same time I cannot consider it an agent to be recklessly or generally used in inflammatory exudations. Unless they are of long standing and thoroughly chronic, nothing is more likely than that it would light up the embers of the inflammation and lead to a relapse.

I have here said nothing as to the use of the faradic current, the applications of which are much less important, and at the same time less open to controversy.

The conclusions, I think, may be fairly summed up as follows:

1. The continuous current is capable of effecting much good in certain selected cases, otherwise little amenable to treatment; and its introduction is, therefore, a distinct gain to gynæcology.

2. It is an agent of considerable power, and therefore, if rashly and injudiciously used, it is also capable of doing much harm.

3. It involves the use of a costly plant, and it is troublesome and tedious to work.

4. Since the proper selection of cases requires, moreover, much special knowledge and great care in the application of the remedy, it is never likely to come into very general use.—*British Medical Journal, Oct.* 19, 1889, *p.* 857.

97.—THE EMPLOYMENT OF CREOLIN AS AN ANTISEPTIC IN OBSTETRIC PRACTICE.

By H. J. Garrigues, M.D., Obs. Surg. New York Maternity Hospital.

Creolin is one of the latest antiseptics and seems to possess qualities which recommend it highly for a thorough trial. It was first brought on the market by the firm of William Pearson & Co., Hamburg, Germany. The literature in regard to it begins in 1887 and is yet quite scant. It is a black fluid of the consistency of a thick syrup. It looks and smells much like coal-tar and is obtained from English coal. Its chemical composition is yet unknown,

When a drop falls into water it forms a white cloud that gradually mixes with the water. Creolin does not dissolve in water, but forms, up to 12 per cent. a homogeneous emulsion with it. The weaker grades are milk-white, the stronger light brown, like coffee mixed with much milk. After a long time a deposit is formed, but the fluid has about the same power as before.

Its great antiseptic value, in which respect it is claimed to be second only to bichloride of mercury and very superior to carbolic acid, has been tested experimentally by Esmarch, Eisenberg, and Washbourne. Eisenberg found that a three per cent. solution kills all germs in one minute, and a five per cent. in ten seconds, the shortest time in which it is possible to make the experiment. Up to three per cent. the emulsion is very pleasant to feel on the skin; a five per cent. solution smarts a little after protracted impression. The mucous membranes are more sensitive. Even a two per cent. solution smarts on the tongue and in some parturient women in the vagina. One-half to one per cent. was well borne when injected into a dog's bladder, while two per cent. caused hematuria (Eisenberg). Kortüm found that irrigation of ulcers with a two per cent. solution was pleasant to the patient. Neudörfer states that a stronger solution than one-half of one per cent. irritates wounds and causes pain. It produces the liveliest granulation and healing where all other substances fail. In contradistinction from most other antiseptics, especially bichloride of mercury, it makes the surface with which it comes in contact soft and slippery.

It has a very considerable hæmostatic power. At first it was claimed that it had another advantage over most other antiseptics by being entirely innocuous. A dog swallowed thirty grammes (about ℥j) and did not show any disturbance (Eisenberg). F. Späth and several other members of the house staff of the Hospital of Munich took for some time up to 2.7 grammes (about ♏ xl) in a single dose, and 8 grammes (about ℥ij) in the course of the day. They felt well, did not vomit, and had an excellent appetite. They gave it with benefit to patients in doses from 0.5 to 1 gramme (♏ vijss-xv). The claim to innocuousness has, however, been challenged, and there has even been attributed a death to the use of creolin.

From different experiments it would appear that if it is not entirely innocuous, it can be taken even internally in large doses by men and higher animals without any detrimental effect. Its odour is rather pleasant, and does not cling to a person and his clothes so long as carbolic acid. Still, the odour is strong enough to cover a moderate degree of fetor. In that respect it equals carbolic acid and is inferior to corrosive sublimate. It is a drawback that the emulsion is not transparent. Thus the field of operation is obscured if it is used for irrigation. Shreds coming out from a cavity like the uterus cannot be seen. Small instruments, such as knives, scissors,

needles, etc., are entirely hidden if covered with the emulsion. In Germany it is a very cheap antiseptic. It is retailed in the original bottle containing four ounces for sixty pfennigs, about sevenpence. According to information received from the druggist of Charity Hospital, it costs the hospital sixty cents per pound, while crystallized carbolic acid costs fifty cents, corrosive sublimate, of which forty times less is used, sixty-five cents, and acetic acid seven cents.

During my last term of service at Maternity Hospital, from January 1 to April 1, 1889, I used it in a two per cent. emulsion on all patients for the vaginal douches during labour; for the intra-uterine injections immediately after delivery in cases that demanded such preventive interference on account of the hand having been introduced into the cavity of the uterus during or after delivery; and for vaginal injections after low forceps operations, perineorrhaphy, and in cases of fetid lochial discharge. Making allowance for the first few days, when we were not yet prepared to use the new drug, it was used on one hundred patients. Upon the whole I am much pleased with it. We had no deaths from any cause, and only one case of septic metritis, which I think was due to the presence in the same ward, in the neighbouring bed, and under the care of the same nurse, of a bad case of ulceration and abscess of the buttocks in a paralyzed patient. The latter was removed to Charity Hospital, the patient with metritis was isolated and recovered in a few days.

In several respects creolin recommends itself particularly to the obstetrician. Its property of making surfaces slippery is of great value in operations, especially turning. Its great hæmostatic power makes it a most desirable drug for intra-uterine injections immediately after delivery. Its lack of transparency is of no importance in the use of large instruments, like a forceps or a perforator. So far, I have only found one class of cases to which it is not suitable, namely, those in which the inside of the womb is affected, and we want to judge of its condition by means of the appearance of the injection fluid returning from it. Under such circumstances a transparent fluid, such as the solutions of carbolic acid, acetic acid, or boracic acid, is preferable. In private practice creolin may even supplant corrosive sublimate altogether. I have used it in a two per cent. solution for my perineal pad with perfect satisfaction.

Since a deposit is precipitated by standing, it is best to make the emulsion *ex tempore*. The creolin should be poured into the water, not the water poured on the creolin, as by the former procedure a better mixture is obtained. It ought first to be mixed with *cold* water, and then hot water added until the desired degree of temperature is reached. If it is first mixed with hot water numerous small black specks are formed which do not dissolve later. The two per cent. solution I have used causes in some

patients a little smarting, but it seems to be quite tolerable, even in refined and nervous ladies. It ought to be used with all the same precautions as corrosive sublimate. For a vaginal douche a quart is sufficient; for a combined vaginal and intra-uterine, three pints may be needed. Its return should be carefully watched. It should be squeezed out of the uterine cavity during and after injection, and removed from the vagina by turning the patient on the side.—*American Journal of Med. Science, Aug.* 1889, *p.* 123.

98.—ON A NEW OPERATION FOR THE REPAIR OF LACERATED PERINEUM.

By Alexander Duke, F.K.Q.C.P.I.; Obstetric Physician to Steevens' Hospital, Dublin.

I wish to bring before the notice of my gynæcological brethren an operation I have designed for the restoration of a lacerated perineum, easy of performance, and which will, when properly executed, form a good perineal floor, and I might almost say practically a new perineal body. The patient having been prepared by the usual preliminary steps required for the old operation, when under the influence of an anæsthetic is placed either in the lithotomy or Sim's position, the left index finger being introduced almost its entire length into the rectum, a long straight double-edged bistoury is made to pierce the tissues in front of the anus at right angles to the vulva; and, guided by the finger in the rectum, is made to penetrate the septum for $2\frac{1}{2}$ inches upwards, the incision being enlarged laterally to two inches at least as the knife is withdrawn. On the two points of incision being pressed together from side to side a lozenge-shaped opening appears, and when all the sutures required have been introduced and are properly adjusted and approximated, the two cut surfaces are brought into direct apposition.

The sutures are introduced by a strong cycle-shaped needle with eye in point mounted on handle, strong silver wire being the suture preferred. The needle is introduced at centre of skin incision below, and guided by the finger in rectum, is made to travel over cut surface to its full extent above, describing the arc of a circle, and, on the point of needle appearing directly opposite, it is threaded with suture and drawn through; or the operator may use buried sutures of catgut in place of the wire suture if preferred. On the ends of this suture being pulled together by the fingers a good idea can be formed of how many additional stitches may be required. When all considered necessary have been introduced and approximated, a finger of each hand passed into rectum and vagina will at once recognise the gain in thickness of septum, the external tissue being pushed fully an inch forwards from anus, and forming a thick and solid perineal body.

The incision being a deep one, on union taking place between the raw surface a considerable depth of support must be afforded where a pessary is required, or where there is much tendency to prolapse of the uterus or vaginal walls. My experience of the operation, although up to the present limited, has satisfied me with the results, and, there being no loss of tissue whatever, should the operation fail it cannot add any difficulty to a subsequent one. If some gynæcologists possessed of larger opportunities will give the operation a trial I shall not be afraid of the result.

Even should the perineum be lacerated to very verge of anus what I describe can be done. I find that leaving the sutures for only three days is best, but if I fear the union is not strong I cut the wire leaving it *in situ* for a day or two longer, thus affording some support and relieving the strain on the edge of suture holes, and I also support the parts by long strips of adhesive plaster carried from hip to hip over new perineum. The wire should be stout silver wire and not too tightly twisted. My friend Dr. Moore Madden has kindly given my operation a fair trial, and was much pleased with the results, especially in one of his cases where the old operation of denuding the surfaces had been tried previously and failed owing to the patient's poor state of health and want of healing power.

The advantages of my operation are briefly these:—1. The simplest of performance as yet proposed. No danger of hemorrhage, the surfaces being brought together at once, wound dry and clean. 2. No danger of sepsis as the incision is not open for the admission of any discharge from either vagina or rectum during healing process. 3. No loss of tissue, and consequently no harm done should the operation fail.—*Dublin Medical Press, May* 9, 1889.

99.—ON KEHRER'S OPERATION FOR DEPRESSED NIPPLE.

By G. Ernest Herman, M.B.Lond., F.R.C.P., Obstetric Physician to the London Hospital.

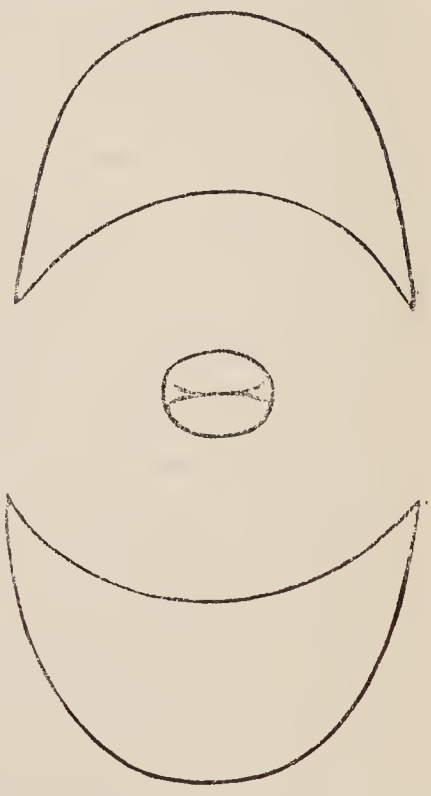
Professor F. A. Kehrer, of Heidelberg, has suggested and practised an operation for the cure of depressed nipple. The cases in which this operation is indicated are those in which the nipple lies in a sort of cup, so that it does not project enough above the surface for the child to seize it, but is otherwise well formed, as in Fig. 1. The operation consists in the excision of a ring of skin,

or of two crescentic pieces of skin, surrounding the nipple; so

that in the healing of the denuded surface the approximation of the internal and external edges of the ring or crescent may so pull upon the skin immediately surrounding the nipple, and forming the cup in which it lies, as to obliterate this cup and render the nipple accessible to the child.

So far as I am aware, this small, but I think useful operation, has not yet attracted attention in this country. I have performed it twice. One of the cases I have been unable to keep under observation. In the other I am now able to judge of the effect of the operation.

The patient, aged thirty, has had three children. The first child she suckled with the left breast, the nipple of which was well-shaped and prominent, but not with the right. The right nipple was sunk in a hollow, so that the child could not seize it, and its apex was drawn in so as to form a dimple (Fig. 1). In May, 1887, she was delivered of her second child in the General Lying-in Hospital. She suckled, as before, with the left breast, but the child was unable to take the right. Five days after delivery I performed Kehrer's operation on the right breast. As the dimple on the nipple ran horizontally, I removed two crescent-shaped pieces of skin, one above the other below the nipple, each piece measuring about two inches long by about an inch across its widest part (see Fig. 2). The patient returned to the hospital to be delivered of her third child in May, 1889. She can now suckle with both breasts. The right nipple, although not so prominent or well-shaped as the left, yet projects enough for the child to grasp it. The object of the operation has therefore been attained.—*Lancet, July* 6, 1889, *p.* 12.



100.—ON RUPTURE OF THE UTERUS AND ITS TREATMENT.

By William T. Lusk, M.D., New York.

[The following observations were founded upon the narratives of a case of rupture of the uterus and a case of Cæsarean section.]

Spontaneous rupture of the uterus during labour is not so rare an event that those engaged in busy practice can afford to be ignorant of the means of combating the tendency to a fatal result by all the resources of modern science.

To Bandl belongs the merit of showing that nearly all ruptures

begin in the lower uterine segment. In normal labours during each pain the fundus and body of the uterus thicken while the lower segment is stretched and thinned by the ovum or the presenting part of the fœtus. So long as no obstacle exists which hinders the descent of the ovum or the fœtus, this process ends in the conversion of the uterus and vagina into a continuous canal. Ordinarily in advanced labour the lower circumference of the body is distinguished from the stretched lower segment by a thickened ridge termed the contraction ring, or the ring of Bandl. In easy labours this ring is often but slightly indicated and is found in the neighbourhood of the pelvic brim.

When, however, the descent of the fœtus is hindered by any cause, the resistance of the ligaments which hold the uterus in position is overcome by the continued retraction of the fundus and body, and as a consequence the contraction ring is withdrawn upward, the lower segment is thinned, and in extreme cases nearly the entire uterine contents may occupy the distended passive inferior segment. Under these circumstances the contraction ring is strongly marked and may be felt through the abdominal walls above the pubes, or even in the neighbourhood of the umbilicus. This movement upward of the contraction ring is limited somewhat by the pelvic and round ligaments and by the direction of the abdominal pressure. As these restraining agents operate more efficiently in first than in subsequent labours, it is not difficult to comprehend the relative frequency of rupture in women who have borne many children. Bandl reports nine cases of rupture in multiparæ to one in the primiparous woman. As a result of the continued retraction of the body of the uterus the lower segment may become so distended as to form little more than a membranous covering to the fœtus, and the conditions favouring rupture are established. It has been maintained upon theoretical grounds that spontaneous rupture is arrested by the contraction ring. This is certainly the rule when there has been no active intervention. My own case, shows, however, that the rule has its exceptions.

Undoubtedly the popularization of Bandl's teachings has contributed greatly toward the adoption of an intelligent prophylaxis in difficult labours. Thus the physician knows that a dangerous attenuation of the lower uterine segment is liable to result from the presence of a hydrocephalic head, from a neglected shoulder presentation, or where the descent of the child is hindered by pelvic contraction, by cicatricial tissue, or by tumours obstructing the parturient passage. The situation of the contraction ring, which, when well defined, can usually be felt through the abdominal walls, furnishes in many cases an index of the degree of the threatened danger. The risks are further increased in cross-births and in lateral and anterior displacements of the uterus, owing

to the augmented pressure exerted under such conditions upon a limited portion of the already overdistended tissues.

If rupture occurs under these circumstances we cannot wash our hands of responsibility. We know that the faulty uterine positions should have been early corrected by judicious bandaging, that the hydrocephalic head should have been reduced in size by puncture, and that in all forms of obstructed labour there is a time when patient waiting ceases to be a virtue and active intervention is demanded. This is not the place for the complete consideration of the resources of our obstetric art. But the new learning teaches us that when the uterine efforts have proved unavailing to fix the presenting part, and the increasing distance of the contraction ring from the pelvic brim points surely to a dangerous thinning of the uterine muscle, the physician must decide promptly upon the indicated measures of relief. These in head presentations are version, craniotomy, and the Cæsarean section. In neglected shoulder presentations only cautious attempts at version are justifiable. If turning is attempted, the operator should never forget to support the head with one hand through the abdominal walls in such a way as to relieve the strain upon the overdistended tissues. In case of failure, the persistent use of rude force is criminal. The alternatives from which choice should be made are decapitation of the child and the Cæsarean section.

My object in dwelling upon these points is the fact that I do not believe that uterine rupture is by any means so rare as statistics would seem to indicate. Statistics do not take into account innumerable cases buried out of sight by ignorance or by silence.

While insisting, however, upon a rule of personal accountability as regards the obstetric attendant, it is necessary to recognize that to Bandl's scheme there are exceptions. Now and then cases are reported in which primary rupture has occurred in the fundus and in the body, and where the lower segment has given way without antecedent signs or warnings. Thus I once witnessed an instance of spontaneous rupture in a woman with an ample pelvis who had previously given birth with ease to nine children. The head of the child presented and no abnormal condition of the soft parts was recognizable. There was nothing to account for the occurrence except a supposed vulnerability of the uterine tissues.

Rupture may be complete or incomplete. In the latter the tear is confined to the muscular structures and the peritoneum remains intact. This is more likely to occur in lateral tears at the site of the folds of the broad ligaments, though, owing to the relatively loose attachment of the peritoneum at the lower segment, incomplete ruptures are not necessarily confined to these points. In most instances the hæmatoma resulting from the bleeding vessels dissects up the peritoneum for a certain distance beyond the tear.

In the complete form the peritoneum likewise gives way, but

often to a less extent, and in these cases dissection of the peritoneum from the uterine muscle beyond the borders of the tear would seem in many instances to show that a certain interval had existed between the rupture of the muscular tissues and that of the peritoneum.

When the shock, the sudden stoppage of the uterine pains, the recession of the presenting part, the bloody discharge, and the lateral tilting of the fundus or its apparent disappearance in the case of the passage of the entire child into the abdominal cavity have led to a diagnosis of rupture, the first indication for treatment is the speedy removal of the child. In selecting the manœuvre by which this is to be accomplished—i.e., whether by forceps, by version, by craniotomy, or by laparotomy—the important consideration to be kept in view is that it shall to the least extent possible increase the dimensions of the already existing rent.

In general terms it may be stated that with an undilated cervix, or in cases of extreme pelvic contraction, or after the passage of the head and arms through the rupture, and in all cases where the child passes entirely into the abdominal cavity, laparotomy is the more conservative measure. Not only is there less shock, but the opening of the abdomen enables the operator to remove effused blood and amniotic fluid from the peritoneal cavity. Still, the not uncommon impression that the ruptured uterus furnishes a promising field for abdominal surgery does not take into account that in so many of the cases where laparotomy is clearly indicated the patient is practically moribund.

The employment of the suture to close the uterine wound, in view of recent Cæsarean successes, sounds reasonable, but it is to be borne in mind that with ragged borders infiltrated with blood, with the peritoneum stripped off, and sometimes with emphysema of the subperitoneal connective tissue, the conditions for union are in no wise comparable to those which exist in the Cæsarean section. The Porro operation promises fairer results, though the deep situation of the tear makes it difficult to secure a healthy pedicle. Godson collected seven cases, all of which terminated fatally, but Slavjansky and Fontana have each more recently reported a recovery after the Porro operation.

When the abdomen is opened, even if hesitation is felt about the deep suture or complete extirpation, there should be none concerning the suturing of the peritoneal surfaces. The rupture is thus converted into an incomplete one with its more favourable prognosis.

When the child can be removed by the natural passages without increasing the extent of the rupture, and the latter is confined to the lower segment, laparotomy is of doubtful value. In many such cases recovery *quoad vitam* has been obtained by the employment of antiseptic irrigation and filling the gap with antiseptic

gauze. Drainage at the same time should be secured by means of iodoform wicking, or the bent rubber tube passed for an inch or two beyond the torn borders. Drainage and packing are most effective when the tear is situated in the posterior wall. The plan of treatment recommended is, of course, only effective where no infection of the abdominal cavity has taken place at the time of rupture. The best results are obtained, therefore, in cases of incomplete rupture. At the same time that drainage is used, compression of the fundus and body should be employed by means of the hands through the abdominal walls, and, in case of hemorrhage, effective aid can be furnished by pressure made upon the aorta. It may be necessary to maintain manual compression for hours. Finally, a carefully graduated compress should be placed around the uterus to maintain firm contractions. For this purpose I prefer to employ the hydrostatic bag. It is of rubber, of a disc shape, and furnished with a tube by which it is partially filled with water. In the condition under discussion and in all forms of post-partum hemorrhage I have found the bag most effective. It adjusts itself nicely to the contour of the contracted uterus, and sometimes has seemed to me to work as intelligently and as surely as the skilled hand of the operator.—*New York Medical Journal, Sept.* 14, 1889, *p.* 281.

101.—ON ECTOPIC GESTATION.

By Lawson Tait, F.R.C.S., Prof. of Gynæcology Queen's College; and Surg. to the Midland Hosp. for Women, Birmingham.

[The following is an abstract of Mr. Lawson Tait's address delivered before the Northumberland and Durham Medical Society, on October 4th, 1889.]

The commonest condition with which we have to deal in the matter of ectopic gestation is unquestionably the condition in which a catastrophe has happened so terrible and so sudden that, short of a railway accident, nothing can be compared to it. One of your patients is suddenly seized with pain in the abdomen. The pain becomes more and more severe as the hours advance, she presents a strange, death-like pallor, she vomits, she lies on her back; the pulse disappears, the skin becomes cold and clammy. She is clearly dying, and yet there is no very clear ground upon which you can make your diagnosis, and until you inquire into the history, you can make nothing out beyond the pain. So sudden is all this that most cases of the kind pass on to the post-mortem table, or into their graves, without a complete diagnosis having been arrived at, unless, indeed the case happens to fall into the hands of a man who has been unfortunate enough to have had similar cases in his practice before. These are the appearances of a woman who is suffering from rupture of the more common form

of ectopic gestation. Your patient dies if not relieved, probably with the true condition of things unsuspected. A post-mortem examination is made, the abdomen is found full of blood; one Fallopian tube is found with a small swelling, and this is found to be the source of the extravasation into the peritoneal cavity. This is what we call a ruptured tubal pregnancy concerning the pathology of which the greatest confusion until recently existed.

Many years ago Lecoste made experiments upon the lower animals with a bifid uterus, and found that impregnation took place high up the bifid organ, and thought this was the Fallopian tube instead of, as it really was, the uterus. This led to the mistake that has existed so long. The position in which impregnation takes place is not in the Fallopian tubes at all, but in the uterus. Now, normally, the Fallopian tube is lined by a layer of ciliated epithelium, which is supposed to have for its function the sending of the ovum down into the uterus, and it was assumed that this function was fulfilled after the ovum had been impregnated. We know now, as nearly as we can know, that another function of this ciliated epithelium is to prevent the entrance of the spermatozoa into the Fallopian tubes. So long as there is a layer of intact epithelium there, impregnation does not and cannot take place in the tubes on this account. This is the key-note of the subject, and if once grasped it makes it all perfectly clear, without it everything is as dark as before. When the Fallopian tube has been denuded of its layer of ciliated epithelium these observations show clearly that its surface becomes exactly like that of the uterus, to which the ovum would normally become attached. If there has been a destruction of the ciliated layer which is not reproduced, then we have the possibility, in the first place, of a spermatozoon entering the tube and, still more important, pathologically and clinically, after impregnation, the ovum may become attached to the walls of the tube, as it normally is to the uterus.

You will find clinically that ectopic gestation occurs, in the vast majority of cases, in women who either have never been pregnant although married for years, or who, having had one, two, or three children, have experienced a period of sterility of some years' duration. In many instances you have a clear history of tubal disease. Impregnation has taken place, and the ovum has become attached to the walls of the tube, and goes on growing.

As regards tubal pregnancy, there is an ample supply of specimens which show the occurrence of three forms, in the infundibulum, in the middle part, and in the interstitial part of the tube. I may dismiss the interstitial variety with a few words. First of all, it is the rarest, for I have only seen one such case, and I know of only six mounted specimens in this country in which this lesion indubitably exists. It is rare, it is invariably fatal, for we

get no notice as to when the rupture is going to take place, and the patient dies before anything can be done. The period at which rupture takes place, i.e., when the tube gives way, may be deferred as late as the sixth month, and seldom occurs before the fourth. The tissues are then so vascular that it is only a matter of a few minutes before all is over. Alluding particularly to my own case, I fail to see how any human power could have saved her even if we had been there at the time. The condition is simple enough, the ovum has become attached to the part of the tube within the structure of the uterus. There it remains and expands, usually in an upward direction, on the fundus of the uterus. The rupture is extensive, usually from four to five inches in length, and the hemorrhage is consequently terrific. Nothing could save such a patient but hysterectomy, and by the time diagnosis is made, all chance of an operation as grave as hysterectomy proving successful would be gone. All the specimens I have seen are identical in this respect, and it is very fortunate that a variety in which we can do so little, and in which the consequences are so terrible, should be so rare.

We may pass on then to the consideration of the other two varieties. I will dismiss the infundibulum form by saying that it too is extremely rare. Let me now remind you of the structure of the Fallopian tube, for this is a fact of the very greatest importance. Inside, there is a lining of mucous membrane covered with ciliated epithelium, and outside is the peritoneal investment. Between them are two clearly defined layers of muscular fibres, longitudinal and circular. The mucous surface is of importance because its denudation, according to our views, is the primary cause of the misplacement. The muscular coat has probably some peristaltic action for the purpose of assisting the ovum and fluids down the tube. Of all the layers, however, the peritoneal is of the greatest importance, because it is according to the way in which it is treated that the ultimate issue of these cases depends. The ovum, to start again from the point of its growth, goes on developing, and though it is true that the Fallopian tube is capable of a certain amount of distension, this is sharply limited, but provided the walls are not damaged, the tube is probably capable of the same amount of distension as the gall or the urinary bladder. I have myself seen it holding from thirteen to fourteen ounces of fluid. On the walls of the tube, however, becomes developed an organ which weakens them, the formation of large venous sinuses on the site of implantation of the placenta diminishes the ability of the tube to resist distension, and it tears. This coincides with the formation of the "cake" of the placenta. The rupture always takes place before the limit of the formation of this placental cake, and the time of the rupture is therefore limited to the twelfth week. Now the rupture may take place in one of two

directions. The placental cake may have formed upon the site where the layers of peritoneum meet, or it may form, on the other hand, upon some part of the wall which is surrounded by peritoneum. In the first instance the rupture takes place into the broad ligament, in the latter, into the peritoneal cavity. Although I have been preaching this point for the last twelve years I have failed to get my professional brethren to see what an enormous difference this makes to the subsequent progress of the case. It means that if this hemorrhage takes place into the peritoneal cavity it is practically uncontrolled.

Again, if bleeding goes on into a confined space, which is capable of only limited distension, especially if that space be filled by something that is capable of inducing coagulation, such as irregularly distributed fibres, you have strong natural means of arresting hemorrhage. If, on the other hand, the cavity be indefinite in its capacity there is a corresponding absence of the causes of coagulation.

You have then to recognise two different varieties, one of intra- and the other of extra-peritoneal hemorrhage. Now intra-peritoneal hemorrhage may arise from various causes, such as from injury or imperfectly checked bleeding after operation. Excluding such causes, however, and speaking from my own experience as a gynæcologist, it has only one origin and that is ruptured tubal pregnancy. To my mind, for all practical purposes, intra-peritoneal hæmatocele and ruptured tubal pregnancy, are one and the same thing. And now what are the symptoms and the physical signs? Concerning intra-peritoneal hemorrhage, I may say, hardly anything at all. You palpate gently and you have obscure fluctuation, very difficult to make out even when the amount of effused blood is large. Percussion gives nothing very remarkable. You get dulness here and resonance there, but nothing to indicate categorically what is the precise condition. Vaginally you feel an indistinct boggy swelling in Douglas's pouch, but there is nothing very clear about that either, and the relations of the pouch are practically unaltered. In the extra-peritoneal variety there may be fifty different causes, such as sudden arrest of the menstruation by chill, &c., but by far the worst cases I have seen of this kind, have been caused by tubal pregnancy bursting into the broad ligament. Here the signs are positive. In the first place, you have a rounded tense tumour in the pelvic region sometimes reaching almost, if not quite, up to the umbilicus. This is the broad ligament dissected upwards and distended by the effused blood. There is distinct fluctuation. On examination of the pelvis you have a condition which is absolutely distinctive, viz., the whole of the roof of the pelvis is fixed and coming down from each side of the uterus you have processes of induration extending; you have a more or less flat-topped roof with pillars,

so to speak, down each side indicating the burrowing of the blood along the pelvic fascia. Then there is another condition almost certain to occur if the case be a severe one, viz., stricture of the rectum. If the broad ligament is ploughed up by blood, one of the roads will be on to the front of the rectum, and around it, and consequently you get an annular stricture of the rectum, which will not disappear for many months.

Now let us go back to the history, first the period of sterility, then the suspicion of pregnancy. The patient *thinks* she is pregnant. There may be irregular discharges, sometimes profuse menorrhagia, but not often a clear history suggesting pregnancy. If, however, you have the acute condition to deal with, what you want to know is, whether the blood is inside or outside the peritoneum. This you can determine on the data I have given you. If the symptoms are negative, then the hemorrhage is inside the peritoneum, if otherwise, then outside, that is in the broad ligament.

Now let me discuss the condition of the second variety, when rupture has taken place into the cavity of the broad ligament. These are most easily diagnosed and easily disposed of. In the act of rupture, the ovum is usually destroyed. The case then resolves itself into one of simple broad ligament hæmatocele, which is to be left severely alone. It will be absorbed, but the convalescence will be long. I strongly advise you to leave these cases alone. The cases that go wrong are those that are injudiciously interfered with. If the blood is absorbed, then there is an end of the matter. Sometimes, however, perhaps one in ten of the cases, the ovum is not killed, the hemorrhage being smaller, then it goes on developing into a series of conditions which I will briefly run over. It may go on to the fourth or fifth month and then die. This a very common ending of the broad ligament pregnancy. When it dies it may still be absorbed, or it maysuppurate, and then you get those extraordinary cases of abscess bursting into the bladder or rectum, or presenting at the umbilicus, with the discharge of fœtal bones. Its cavity is in immediate relation to the anterior wall of the rectum, and therefore thehistory of the cases is full of instances of discharge of the fœtal bones *per rectum*, and less commonly into the bladder. Then again the fœtus may not die, but may go on to full time, distending the peritoneum, and it is extraordinary to what an extent this detension can be carried. The whole of the fœtus in such cases is extra-uterine, there is nothing inside the peritoneum, proving that the view I took many years ago was the correct one, viz., that these full time ectopic pregnancies were extra-peritoneal. Now what must be done if the case goes on to full time? The only course open to you is to operate and remove a living child. I am quite prepared to admit that if you can kill the fœtus at an early period of its career by means of

the electric current, or indeed in any way, then you may spare the woman the risks of rupture, but the difficulty is that only once in the course of my career have I ever seen a case of ectopic pregnancy prior to rupture. The first thing we know or hear of the case is, that the woman is lying on her back in great agony, and in a state of collapse.

We come now to the practical question, the most important point in the subject. If you are called to a patient who is evidently dying from the effects of a ruptured tubal pregnancy, what are you to do? We know that the source of the hemorrhage is in the broad ligament. You open the abdomen and you find it full of blood and red clots; do not at first trouble about the blood, but go straight for the broad ligament: go to where a swelling is felt, pull it up and put on a ligature, and your patient is saved. In order to sum up what I have to say let me read the account of the last case on which I operated only a short time since. On the morning of August 10th, at 1 p.m., Dr. Nelson, of Birmingham called upon me in reference to a young married woman, æt. 26, whom he had seen that very morning. She complained of a sudden attack of violent pain in the lower part of the abdomen. She rapidly got worse, and when seen by him she was already in a condition of collapse. She was acutely anæmic, and presented all the classic symptoms of abdominal hemorrhage. The one point in the history that gave a clue to the case was that she had gone six weeks over her time without menstruating. He made the diagnosis of ruptured tubal pregnancy, and I had little hesitation in agreeing with him. I opened the abdomen, and as one of the spectators afterwards said to me, the rush of blood was as if I had opened a hydrant. Disregarding the blood and clots for the time being, I went straight for the fundus of the uterus, and in a moment discovered that a tubal pregnancy existed, and had ruptured. I promptly ligatured it, and proceeded to remove the blood and clots. I then closed the abdomen, leaving in a drainage tube. Not another drop of blood was lost and the further progress of the case was as follows:—At 5 p.m. on the same day her temperature was 36°C, and the pulse could not be felt except deep down in the neck. The pupils were widely dilated and the only sign of life was some slight movement of the diaphragm. The complexion was waxy and yellow. By 11 p.m. the temperature had risen to 38°C, but still no pulse was perceptible at the wrist. It was only 36 hours after the operation that it was possible to count the pulse. It constituted the 47th case of the kind I had operated upon. Dr. Leichelmann made a careful examination of the preparation, and the rent in the tube was not more than $\frac{1}{4}$ of an inch in length, the fœtus not being more than the fourth week. It lay in the membrane within the tube.—*Medical Press and Circular, Oct.* 16, 1889, *p.* 375.

A Retrospect of New Drugs, &c.

ANTIPYRIN (DIMETHYLOXY-CHINICIN).—This pseudo-alkaloid has been proved by experience to be one of the best antipyretics; it reduces the temperature in every stage of disease attended by pyrexia. The temperature is lowered gradually, commencing a quarter of an hour after ingestion of a dose of from 10 to 20 grains. Germain Sée also gave it with success as an anodyne in cases of acute rheumatism, the pain and swelling disappearing in from two to four days, after frequent dosage of 60 grains at a time. Oliver reports recovery from chorea after the use of antipyrin, when every other remedy had failed (Lancet, vol. i, 1888, p. 867). Jamieson instances recovery from severe dysmenorrhœa, from persistent lumbar pain, and obstinate temporal neuralgia, by the regular administration of antipyrin. Oliver considers it of the greatest service in the treatment of typhoid fever (Lancet, May 5, 1888). Dr. Forsbrook prescribed antipyrin in 100 cases of migraine, and found doses of 15 grains every 20 minutes seldom failed to remove the characteristic symptoms (Lancet, Dec. 10, 1889). Dr. Bokenham details its action in 20 cases of epilepsy, and in most cases the results were very encouraging (Practitioner, April, 1888). The value of antipyrin in whooping cough has also been confirmed by Gassicourt. Dujardin-Beaumetz considers its employment very beneficial in cases of diabetes, lessening the amount of urine and of sugar excreted. A pleasant form of antipyrin is in tabloids; when these are administered the erythematous rash sometimes attending its employment is prevented, as this form is more gradually assimilated than the solution or powder.

SULPHONAL (DIETHYL-SULPHON-DIMETHYL-METHANE).—The benefit attending the use of this recently introduced hypnotic is confirmed by most practitioners. In insomnia unaccompanied by any organic disease most satisfactory results have been obtained, where the salt has failed to act, its difficult solubility in watery liquids has not generally been noted. The best form of sulphonal is probably in compressed tabloids. In the process of manufacturing these, the salt is compressed to an impalpable powder, and when crushed in any warm liquid, such as coffee, tea, or soup, and taken

two hours before retiring to rest, seldom fails to afford refreshing sleep of from 6 to 8 hours' duration. Dr. Lauder Brunton in his Croonian Lecture, considered sulphonal to be the best of the recognised hypnotics. It does not compel sleep like morphine, but rather induces it in a pleasant manner. Sulphonal does not depress the heart's action like chloral, or impart the disagreeable odour to the breath attending the employment of paraldehyde. Dr. Grainger Stewart (Professor of Practice of Physic and Clinical Medicine in Edinburgh University), spoke of the successful results he had had in his practice from the use of sulphonal-Bayer as a hypnotic. He gave it in doses of 15—30 grains at 5 p.m., and found that it produced satisfactory sleep at the ordinary time. He had not seen any disadvantageous results following its administration. (Medical Press, June 13, 1888.)

The Digestive Ferments (Fairchild) Preparations and Powder.—The pepsin in scales and powder is an absolutely pure ferment, free from any extraneous substance, such as milk, sugar, starch, &c. It possesses twenty times the proteolytic power of B. P. Pepsin, one grain digesting 1000 grains of finely-divided coagulated egg albumen, in an acidulated solution, if kept at a temperature of 100° F. for four hours. The advantages of a pure pepsin are obvious; a smaller dose may be prescribed and the powder will not stick together when exposed to the atmosphere. The tabloids, each containing 1 grain with a trace of acid and appropriate aromatics, present an elegant means for the administration of pepsin.

Zymine.—This is the pure pancreatic ferment. The British Medical Journal, speaking of the pancreatic method of predigestion, says it has proved useful in many hands in uræmic vomiting, gastric catarrh, pernicious anæmia, gastric ulcer, and pyloric and intestinal obstruction. Its introduction has probably done more than any other therapeutic measure of recent times to lessen infant mortality. The zymine peptonising powders are supplied in tubes, each containing sufficient of the ferment with the appropriate amount of alkali, to predigest a pint of cow's milk or beef-tea. Full directions for the preparation of pancreatised foods are supplied with each box. The food for infants may be conveniently digested and administered in a "thermo-safeguard feeding bottle." This

vessel is fitted with a thermometer imbedded in the glass, which immediately registers the temperature, and is also graduated in ounces as a safeguard against over-feeding. Clinical reports:—"We can recommend no better substitute for human milk." (Prof. Lewis Smith.) "The main difficulty in the digestion of milk is removed." (Dr. Eustace Smith.)

Pure Terebene (Burroughs).—The properties of this isomer of pure pine oil are well known. Dr. Murrell considers its systematic use of the utmost benefit in the treatment of every case of winter cough.

Hypodermic Tabloids.—This stable form of producing the most delicate alkaloidal salts for subcutaneous injection, possesses the following advantages over the ordinary solutions:—1. They ensure accurate dosage. 2. They are very portable, a case containing one dozen tubes of tabloids, syringe and needles, can be conveniently carried in the waistcoat pocket. 3. They are permanent, and will keep perfectly for a long time in any climate. 4. They are very readily soluble.

Hazeline.—This elegant preparation of witch hazel (Hamamalis Virginica) is extensively employed by the profession as a stimulant and hæmostatic, its use being indicated in a large variety of cases.

The Kepler Solution of Cod Liver Oil in Malt Extract.—This preparation is a decided advance in pharmacy, differing altogether from so-called emulsions. The oil is finely divided and is presented to the stomach in a readily assimilable form, the diastase contained in the malt extract assisting in its perfect absorption by the lacteals. Its administration is not followed by fishy eructations, and steady improvement is invariably noticed when taken in wasting diseases. The British Medical Journal considers the Kepler solution "an ideal form for the administration of fat."

The Ward Cousins Antiseptic Artificial Ear Drums.—These little membranes are manufactured according to the direction of Dr. Ward Cousins, of compressed antiseptic cotton coated with plastic collodion. The membrane is so light that its presence in the ear is hardly noticed by the wearer, and causes no discomfort when placed *in situ*. Its antiseptic properties tend to promote a healthy condition of the meatus, while the membranous tissue

acts as a perfect substitute for the natural drum. The shape of the drum is similar to a high-crowned Welsh hat with a handle attached. The drum is easily inserted by the patient himself, according to very complete directions upon the label of each box. The price for these membranes is remarkably low, one shilling per box of three dozen; therefore a fresh drum may be inserted daily. The use of the artificial membrana tympani is indicated in cases of perforation, or of ossicular change of the natural membranes. The artificial membranes may be always hopefully employed in cases of accommodative loss from alteration in the contents of the tympanum, provided the Eustachian tube is unobstructed and the nasopharynx fairly healthy.

Vaporoles.—These are very friable globular glass capsules surrounded by cotton wool, the whole enclosed in an elegant little silken sac. When required for use the capsule is crushed by tapping with anything hard, and where directed, the crushed vaporole may be dropped into the jug containing hot-water, into the water bottle of a Vereker chloride of ammonium inhaler, or the contents (for instance, amyl nitrite) inhaled dry by holding the crushed globe in the palm of the hand. Most of the medicaments suggested in the Throat Hospital Pharmacopœia are prepared in this way. The vaporole presents an accurate and elegant means of prescribing inhalants.—(*Com.*)

Ouabaine.—The use of this substance has been suggested for asthma, pertussis, and heart disease by Prof. E. Gley, who considers, as a result of his researches, its action on the heart to be analogous to strophanthin—the two bodies forming part of the group of heart poisons, which in a general way act like digitaline.

Damp-Proof Boots.—"Noiseless and damp-proof" are characteristics of the Leather and Rubber Co.'s boots (Scafe's Patent), which, together with their non-liability to slip in frosty or muddy weather, will greatly commend them to medical men and others who have much out-door visiting.

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Chemistry— Prof. Crum Brown.
Surgery— Prof. Chiene, M.D.
Institutes of Medicine or Physiology— Prof. Rutherford, M.D.
Midwifery and Diseases of Women and Children— Prof. Simpson, M.D.
Clinical Surgery (Mon. and Th.)— Prof. Annandale.
Practice of Physic— Prof. Grainger Stewart, M.D.
Clinical Medicine (Tu. and Fr.)— Profs. Grainger Stewart, Fraser, and Greenfield; and Prof. Simpson on Diseases of Women.
Anatomy— Prof. Sir William Turner, M.B.
General Pathology— Prof. Greenfield, M.D.
Botany— Prof. Balfour, M.D.
Natural History— Prof. Ewart, M.D.
Medical Jurisprudence— Prof. Sir Douglas Maclagan, M.D.

LECTURERS.—Clinical Instruction on Diseases of Children, James Carmichael, M.D., and John Playfair, M.B. Comparative Embryology, George Brook; Philosophy of Natural History, G. J. Romanes, M.A., LL.D.

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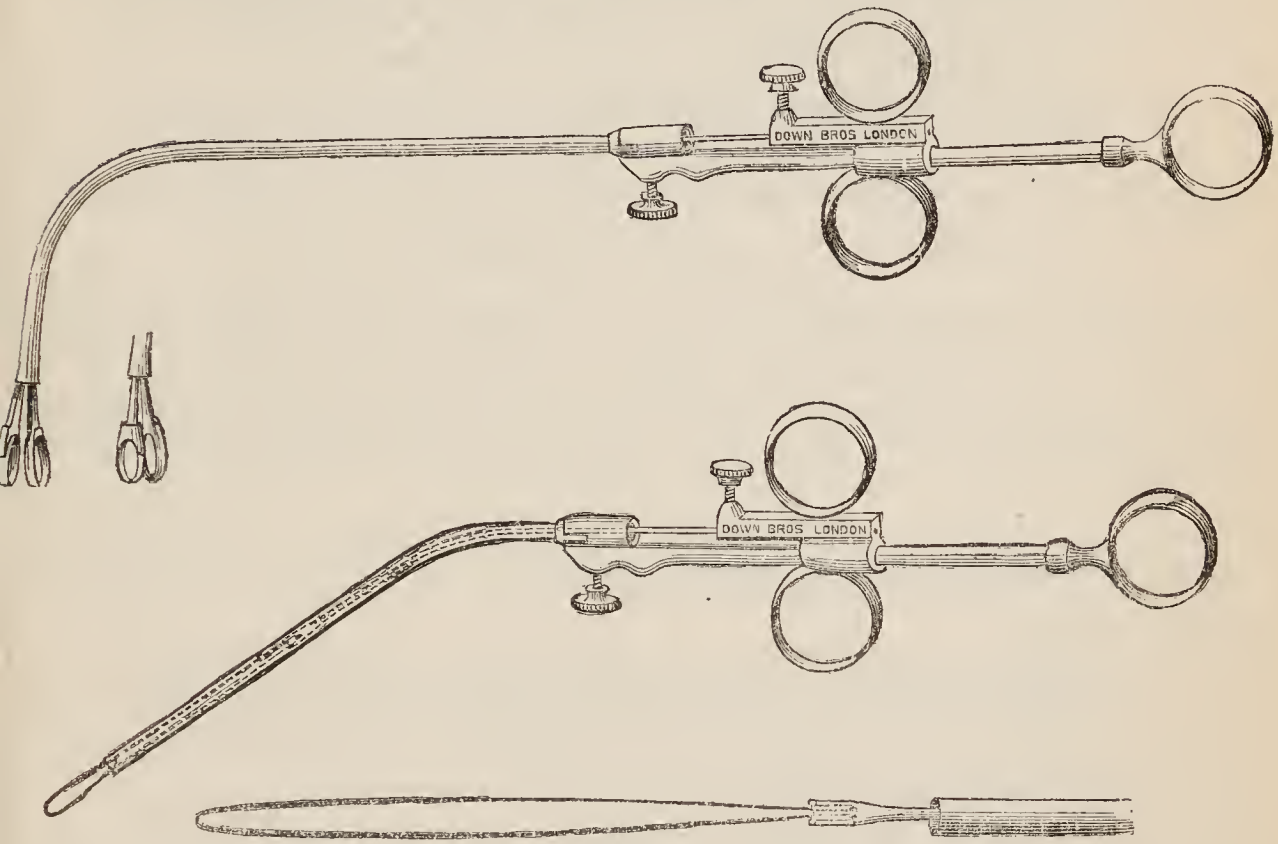

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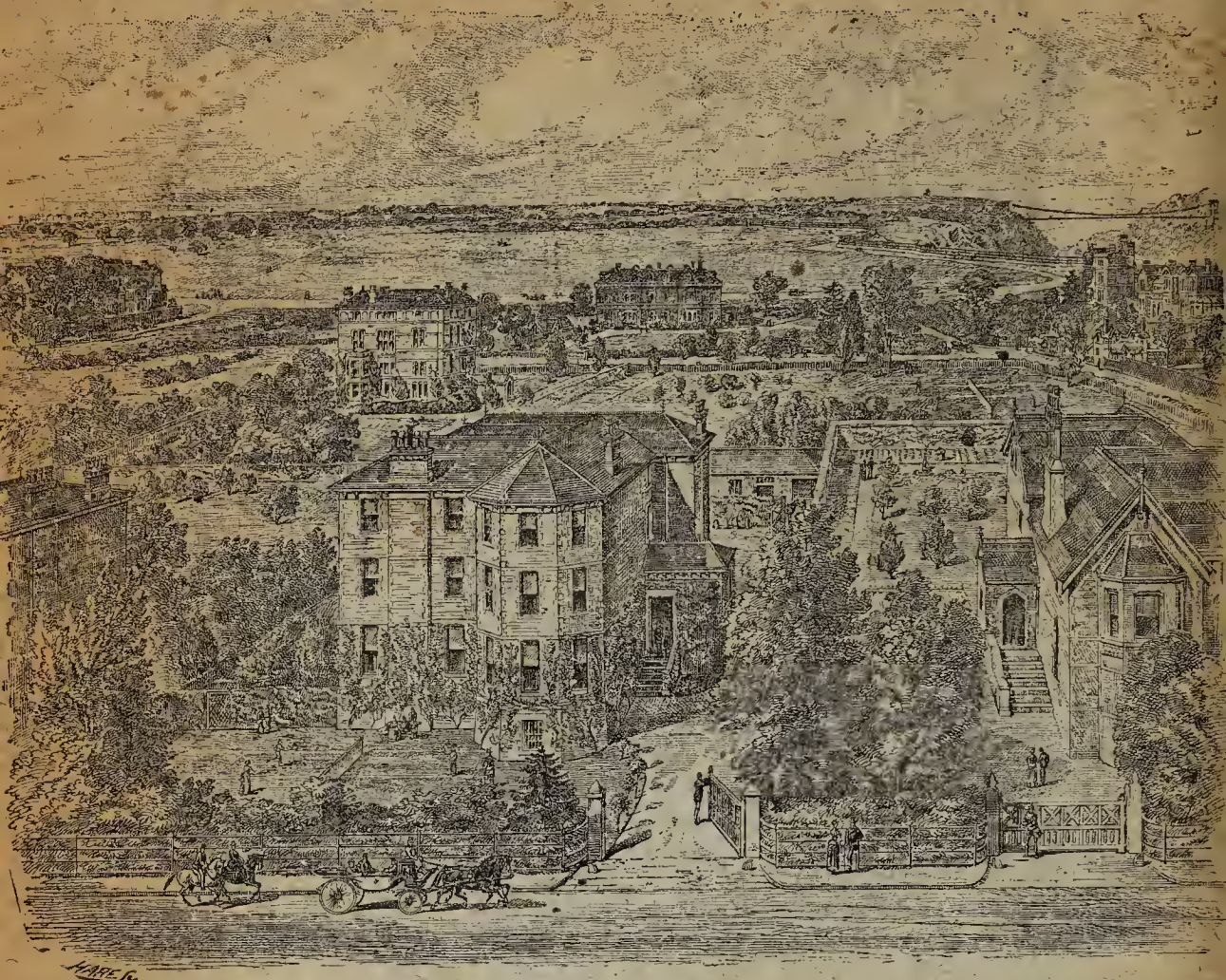

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